

Reclamation District 1000
NW Sacramento County and SW Sutter County,
bisected by CA Highway 99
Sacramento Vicinity
Sacramento and Sutter Counties
California

HAER No. CA-187

HAER
CAL
34-SAC.V,
1-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

**Historic American Engineering Record
National Park Service
Department of the Interior
San Francisco, California**

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**HISTORIC AMERICAN ENGINEERING RECORD
RECLAMATION DISTRICT 1000
HAER NO. CA-187**

Location: The American Basin, northwestern Sacramento County and southwestern Sutter County, California

USGS 7.5' Quadrangles: Vernon, Pleasant Grove, Grays Bend, Taylor Monument, Rio Linda, Sacramento East, Sacramento West

UTM Coordinates: ~~102~~ 618 960 4291 880 ~~102~~ 627 660 4298 690

~~102~~ 639 260 4274 440 ~~102~~ 618 740 4272 160

(UTM Coordinates for contributing features are included in "Description.")

Date of Construction: Initial features: 1912-1916; numerous additions and alterations to the present

Engineer: Early features: George Dillman, J.G. White & Company, Stephen E. Kieffer, Emery Oliver; numerous other engineers

Builder: Early features: primarily Natomas Company; numerous other builders

Present Owners: Numerous

Present Use: Mixed. District features serve for flood control and transportation; land is in use for agricultural, residential and commercial purposes.

Significance: The Reclamation District 1000 Rural Historic Landscape District is significant at the state level for the period from 1911 to 1939. The establishment of the District as a part of a regional reclamation plan resulted in the social, economic and physical transformation of the region, from the original flood plain to a distinctly different open rural landscape consisting of levees, canals and roads intersecting to form large, blocks of fields. RD 1000 was among the first and largest of the major reclamation districts in the state. These features and spatial patterns that characterized the reclamation landscape during its period of significance are characteristic of the landscape today. The district was determined eligible for the National Register of Historic Places in 1994.

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Date: June 1997

I. DESCRIPTION

The vast, open landscape of Reclamation District (RD) 1000 is characterized by its large field patterns formed by the overlapping of the drainage and road system, covering 87 square miles. The grid pattern created by the canals, roads, and fields distinguishes this area from the surrounding landscape, gives RD 1000 a recognizable character, and remains a consistent distinguishing feature since the completion of the infrastructures of the district in the early 1920s. The description of the individual contributing characteristics, grouped under drainage system, road system, and large scale land use patterns, is a way to present this complex and large landscape in a comprehensible manner.

The following text describing the features is quoted from the 1996 Dames & Moore *Historic Properties Treatment Plan for Reclamation District 1000 Rural Historic Landscape District*, with minor editorial changes.

Drainage System

Today, the RD 1000 historic drainage system remains intact. The location, materials, and design (function) of levees and canals remain unchanged. Over the years, five additional pumping plants have been added, allowing for a more sophisticated control of flood waters. Water within the system can be pumped and drained at these plants located along the perimeters of the district rather than waiting for water to flow down to Plant No. 1. The drainage system consists of 30 miles of main canals (these are owned in fee, with portions of the East Drainage Canal on right-of-way) and the eight pumping plants. This is the backbone or framework of the drainage system. In addition, there are approximately 150 miles of ditches that are used for drainage and irrigation.

LEVEES AND EXTERIOR DRAINAGE CANALS

River Levee

The River Levee is the western edge of RD 1000 and protects the district from the flood waters of the Sacramento River. It begins at the Cross Canal Levee and continues downstream for 17.99 miles to the confluence of the American and Sacramento rivers. The levee was built so that there was a minimum width of 800 feet between it and the levee on the west bank of the river. This and all other levees of RD 1000 conform to standards established for the Sacramento Flood Control Project in 1911. The Garden Highway runs along the crown of the levee. The location, materials, and design (i.e. the

GENERAL VICINITY MAP

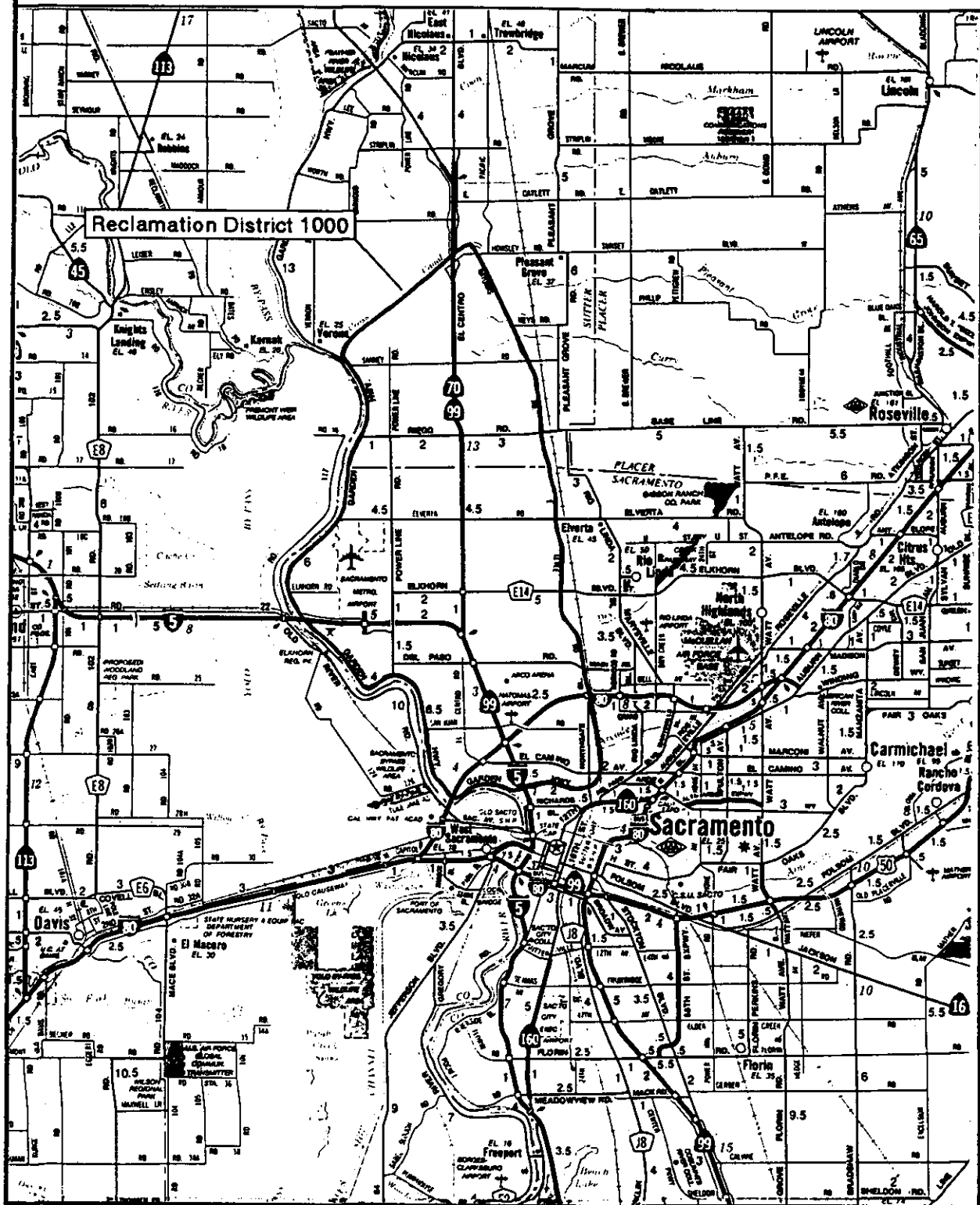
Reclamation District 1000

Source: California State Automobile Association

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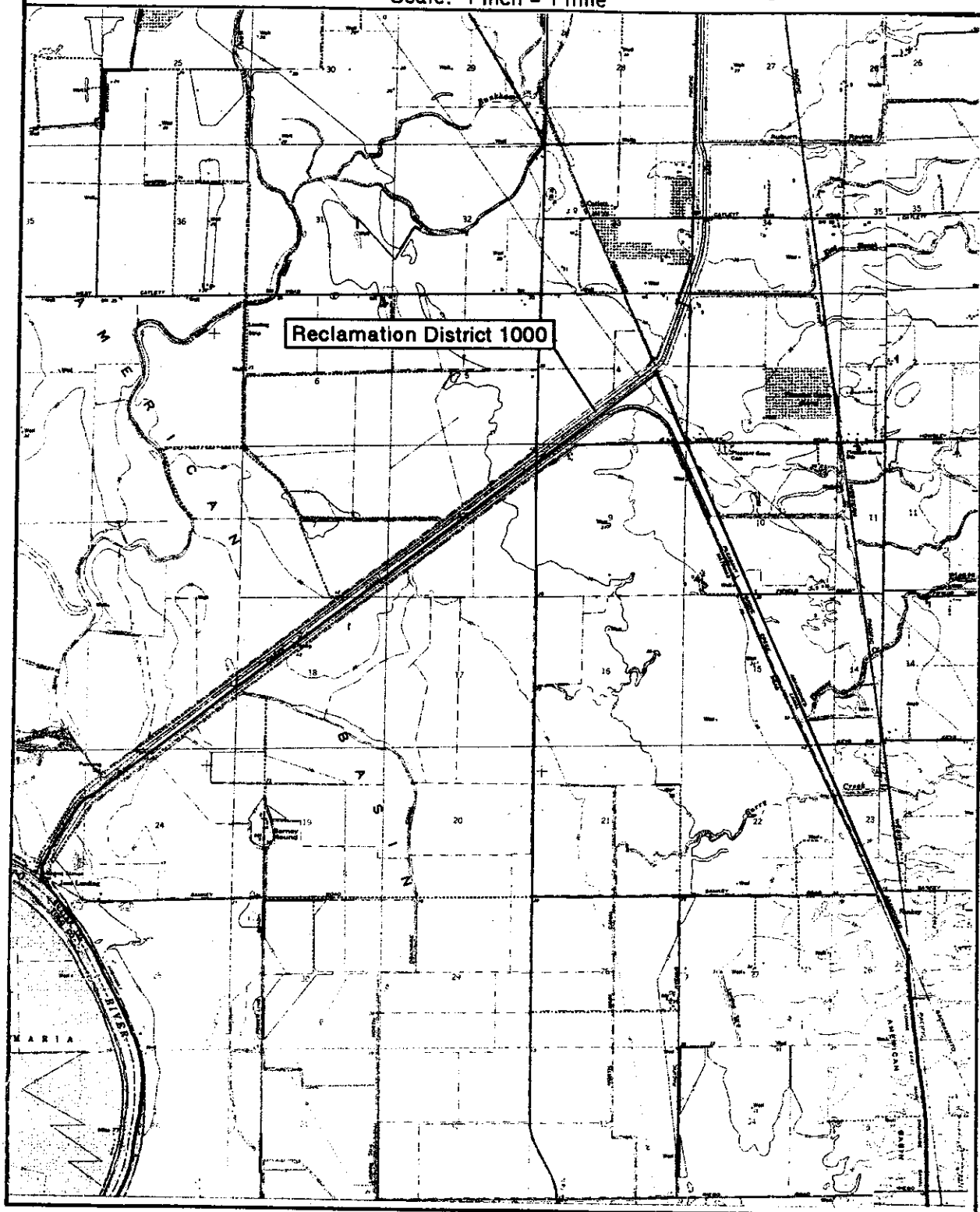
Composite of USGS 1:24,000 Series Quadrangles:
Verona 1978 Rio Linda 1975
Pleasant Grove 1981 Sacramento West 1980
Grays Bend 1975 Sacramento East 1980
Taylor Monument 1980

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Scale: 1 inch = 1 mile



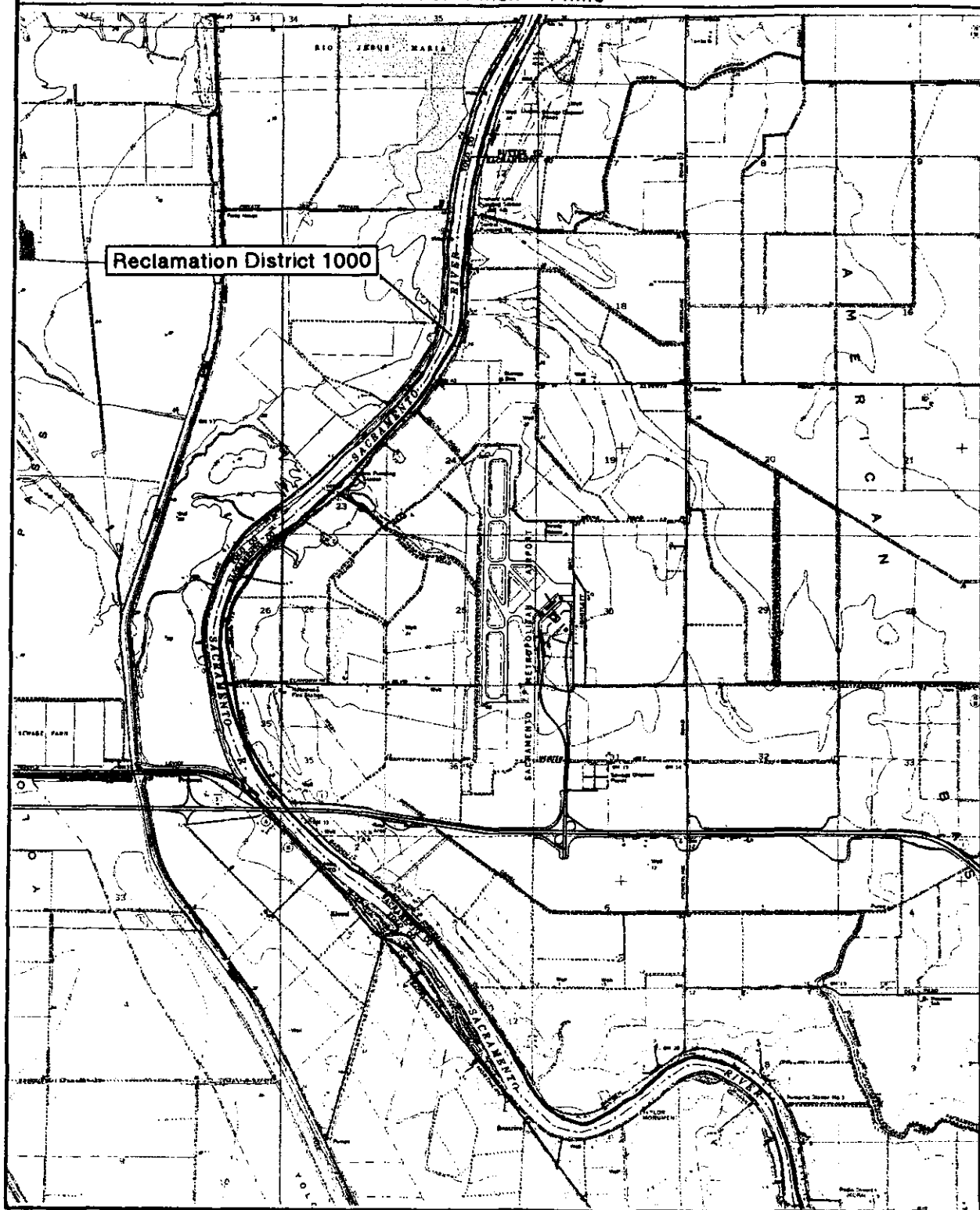
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Scale: 1 inch = 1 mile



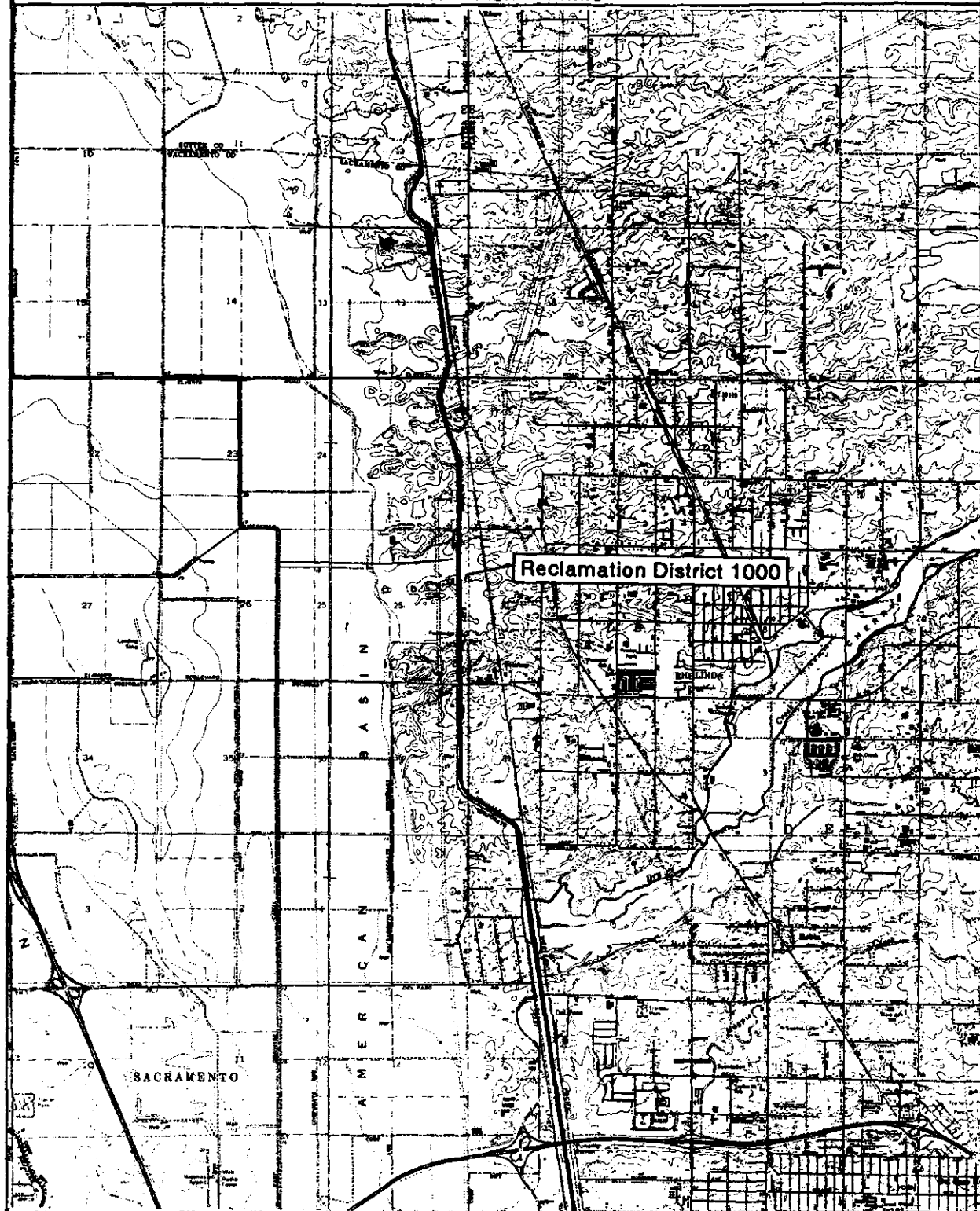
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Scale: 1 inch = 1 mile



function of the canal within the drainage system) remain unchanged. The land uses and vegetation along the canal evolved over time and are discussed in the following descriptions.

East Levee

The East Levee extends from the northeastern corner of the district, where it intersects the Cross Canal Levee, along the eastern edge of RD 1000. It ends at the River Levee in the southwestern corner of the district. The Natomas/East Levee Road runs along the crown of the levee on the eastern side of the district. The Garden Highway runs along its crown on the southern side of the district. The portion of the levee along the southern boundary of the district was originally 20 feet wide at the crown and was widened to 40 feet in 1939 when the Corps of Engineers (Corps) constructed a wharf at the Natomas Main Drainage Canal. Otherwise, the levee has remained unchanged; its location, materials, and design (function within the drainage system) remain the same.

Natomas East Main Drainage Canal

Natomas East Main Drainage Canal extends from Sankey Road southward along the eastern edge of RD 1000. The ownership of this canal is held by RD 1000, the Sacramento Land Company, and private parties. The East Levee and canal forms the southern boundary of the district and meets the River Levee at the Sacramento River. Along the southern edge of RD 1000, the canal also forms the northern edge of Discovery Park, which is a part of the American River Parkway. The canal is 14.51 miles long. The levee protects the district from streams, such as Dry and Arcade creeks, that once drained into the basin. The canal intercepts the water and conveys it to the Sacramento River. The canal has remained unchanged; its location, materials, and design (function within the drainage system) remain the same.

Pleasant Grove Canal and Levee

The Pleasant Grove Canal begins just north of Sankey Road and continues northward until it intercepts the Cross Canal. Water from the Pleasant Grove Canal and the East Side Canal (located along the eastern boundary of RD 1001) drain into the Cross Canal. The canal has remained unchanged; its location, materials, and design (function within the drainage system) remain the same.

Cross Canal and Levee

The Cross Canal and Levee separate RD 1000 and RD 1001; they are the northern boundary of RD 1000 and the southern boundary of RD 1001. It is owned jointly by RD

1000 and RD 1001 with the dividing line down the middle of the canal. The levee protects the district from land runoff in RD 1001 and from streams to the north and east that once drained into the basin. The canal carries the water westward to the Sacramento River. The Cross Canal and Levee begins at the intersection of the Pleasant Grove and East Side Canals in the northeast corner of the district and runs southwesterly to the Sacramento River. According to Silsbee, the levee has been raised and strengthened twice. The first time was after flooding during 1938-1939, when high water in the canal threatened to top the levee; the second time was during 1955 after flooding in RD 1001. The overall location, materials, and design (function of the canal within the drainage system), however, remains unchanged.

INTERIOR DRAINAGE CANAL SYSTEM

The interior drainage canal system has four branches: the North, East, and West drainage canals, and the Natomas Main Drainage Canal. The location, materials, and design (function within the drainage system) of the canals have remained unchanged.

North Drainage Canal

The North Drainage Canal drains the northwestern portion of the district and begins at the Cross Canal approximately two miles east of the Sacramento River. It continues south through the district for approximately four miles at which point it turns to the west and continues southwesterly until it intersects with the River Levee. Pump Plant No. 2 is located at this point. The canal follows its original layout. Its location, materials, and design (function within the drainage system) remain unchanged.

East Drainage Canal

At the point where the North Drainage Canal turns to the west, the East Drainage Canal begins. The canal goes in a southerly direction until it meets Elverta Road. It then continues east following Elverta Road for about a mile and a half. At this point the canal turns 90 degrees to the south and goes under the road via a concrete culvert. The East Drainage Canal continues southward until it intersects the West Drainage Canal to form the Natomas Main Drainage Canal. This canal drains the eastern portion of the district. The canal follows its original layout; however, a portion of the canal in the vicinity of the intersection of Interstates 5 and 80 (I-5 and I-80) is now underground. Its location, materials, and design (function within the drainage system) remain unchanged.

West Drainage Canal

The West Drainage Canal begins at the River Levee on the north side of Elkhorn Boulevard. It drains the western portion of the district that is south of the North Drainage Canal. The canal continues in a southeasterly direction until it intersects with the East Drainage Canal to form the Natomas Main Drainage Canal. A portion of the canal runs through Fishermans Lake. The West Drainage Canal meets the East Drainage Canal to form the Natomas Main Drainage Canal just north of I-80 approximately one-half mile south of the I-5 and I-80 intersection. Its location, materials, and design (function within the drainage system) remain unchanged.

Natomas Main Drainage Canal

The Natomas Main Drainage Canal is formed by the intersection of the East and West drainage canals just north of I-80 approximately one-half mile south of the I-5 and I-80 intersection. It continues from this point south for a little over one mile to meet the Sacramento River at Pumping Plants No. 1-A and 1-B. The canal follows the general route of the Second Bannon Slough, although it was dredged to widen and deepen the slough to facilitate drainage. Its location, materials, and design (function within the drainage system) remain unchanged.

Drainage Ditches

In addition to these main drainage canals, there is a system of approximately 150 miles of smaller ditches. These ditches were built by the Natomas Company. They are either located on rights-of-way or are owned by the individual landowners. They transport water from the field to the drainage canals and are maintained by RD 1000. These ditches, along with the right-of-way roads (see circulation system description), form the individual fields within the larger spatial pattern. They are an additional layer of the large grid of fields formed by the canals and roads, and are located throughout the district.

PUMPING PLANTS

Pumping Plant No. 1-A

The first and largest pumping plant was originally designated Pumping Plant No. 1, but was re-designated Plant 1-A when a second plant (Plant 1-B) was built at the site in 1959. The plant is located at the southern end of RD 1000 on the Sacramento River, about one mile west (upstream) of its confluence with the American River. It is the

terminus of the Natomas Main Drainage Canal. The entire drainage canal system was designed to empty into this canal and be discharged by Pumping Plant 1-A.

Construction of Pumping Plant No. 1 began in 1914 and was completed in late 1915. However, the plant was first operated on December 23, 1914 before construction was completed. The original pumping equipment consisted of three Byron Jackson and one Platt 50-inch centrifugal pumps. Two Byron Jackson pumps were directly connected to 600-horsepower (hp) General Electric motors and the other pumps were directly connected to 650-hp Westinghouse motors. The three-phase, 60-cycle, type "CCL" Westinghouse motors turned at 247 rpm. Each pump had a rated capacity of 65,000 gallons per minute at a head of 24 feet, for a combined capacity of 578 cubic feet per second, or 52 acre-feet per hour, for all four pumps.

Intake for each pump was taken by means of a 50-inch-diameter pipe constructed of ¼-inch riveted steel plates. These suction pipes extended 10 feet below normal water level into a sump (or underwater pit) at the bottom of the former slough. Each pump was equipped on the discharge side with a 50-inch, motor-operated gate valve which could be fully opened or closed in 2 minutes. After passing through the pumps and gate valves, water was discharged into two parallel, arched conduits with 12-inch reinforced concrete walls. The conduits were about 300 feet long and passed under the levee, each conduit branching into two passageways about 100 feet from the river. Water was discharged into the river through 5-foot by 7-foot hand-operated sluice gates backed by steel-framed wooden flap gates.

The pumping equipment was housed in a building measuring 30 feet wide by 80 feet long by 24 feet high. Unlike another pumping plant built at the same time for RD 1001, directly north of RD 1000, this building was not designed to be a watertight part of the levee because it was sited within the area to be protected by it. The building had a reinforced concrete foundation and 28-inch reinforced concrete floors. A steel skeleton with latticed columns and trusses supporting a galvanized iron roof was then erected and enclosed with walls of interlocking tile. Girders between columns supported a 10-ton, manually operated overhead crane to facilitate installation and subsequent servicing of the pumping machinery. As a precaution against flooding, switchboard equipment was installed in a gallery, which also allowed operators an overview of the pumping equipment. To save on costs, electrical switching and control equipment for the pumps and motors were kept as simple as possible, requiring manual operation. Three water-cooled transformers which stepped line current from 54,000 volts to 1,100 volts for starting the motors and 2,200 volts for running them were housed in a separate building.

The pumping plant still stands, with some alterations to the equipment and structure. The pump motors were re-wound in 1958. In 1989, the discharge structure was shortened by 15 feet at the river end, where undercutting by wave action had left it unsupported, and the gate and flap valves were overhauled and repaired. A refurbishing of the pumping plant was undertaken in 1990-1991. The original, hand-operated electrical controls in the gallery were replaced with automatic controls and the impellers of all four pumps were replaced with new impellers cast on the original shafts. The original, riveted intake pipes were replaced with welded steel intake pipes, safety railings were added to catwalks and platforms, the original, six-over-six double-hung sashes were replaced with sheet glass, and doors and lighting fixtures were replaced. The location and function of the plant remain unchanged; however, it has been augmented by the pumps as described below.

Pumping Plant No. 1-A is part of the historic drainage system within RD 1000. Its location and design (function within the drainage system) remain unchanged. Changes to its materials are the result of modernization required to maintain the function of the plant.

Pumping Plant No. 1-B

Pumping Plant No. 1-B was installed at the Natomas Main Drainage Canal adjacent to Pumping Plant No. 1-A in 1959. It consists of two vertical-lift pumps driven by 300-hp, synchronous motors, each delivering the equivalent of 600-hp, with each having a capacity of 10 acre-feet per hour. The pumps are housed in a corrugated metal building elevated above flood level on steel columns. One pump is automatically controlled and serves as RD 1000's primary facility for all but heavy storm and maximum irrigation runoff periods.

Pumping Plant No. 1-B is not a part of the historic drainage system.

Pumping Plant No. 2

This plant is located on the Sacramento River near Pritchard Lake, about 12 miles north of Pumping Plant No. 1. This site was selected because it was on ground that was higher than the surrounding reclaimed land. Thus, one plant at this location could serve two functions--drainage and irrigation. By excavating a deep drainage canal, the North Drainage Canal, to this point, water could be drained by gravity from the 16,000 acres in the northwestern portion of RD 1000. It could then be pumped into the Sacramento River outside the levee, or into the irrigation canal for re-distribution by gravity.

Construction of the plant began in July 1915 and was completed by the end of October 1916. It was first operated on January 13, 1916, before the plant was completed.

The plant is located in a large, excavated hollow so that the pumps sit below water level. These originally consisted of two 36-inch Allis-Chalmers centrifugal pumps directly connected to two 300-hp Westinghouse type "CS" three-phase, 60-cycle induction motors turning at 230 rpm. The pumps were rated at 35,000 gallons per minute at a 24-foot head, for a combined capacity of 155 cubic feet per second or 13 acre-feet per hour. Two 36-inch intake pipes took suction from a sump at the end of the drainage canal. The bottom of this sump was 10 feet below the water level of the canal and 8 feet below the low water level of the river. A 48-inch pipe with a gate valve at the sump end led from the river to the sump. When this valve was opened, the sump could be filled with water from the river. When it was closed, water could be discharged from the pumps through the pipe into the river. Sets of gate valves on the discharge sides of the pumps allowed water to be directed to the 48-inch river pipe or to two 36-inch pipes leading into the irrigation canal. The pumping equipment was housed in a corrugated metal building.

Pumping Plant No. 2 was rebuilt in 1976, at which time the original pumps were replaced by a 200-hp, vertical-lift pump owned jointly by RD 1000 and the Natomas Central Mutual Water Company, and a 300-hp, vertical-lift pump owned by RD 1000. The building which housed the original pumps was demolished in 1991.

Pumping Plant No. 2 is a part of the historic drainage system. The location and design (function of the pump within the drainage system) remain unchanged. Changes to its materials are the result of modernization required to maintain the function of the plant.

Pumping Plant No. 3

Pumping Plants Nos. 1 and 2 were designed to drain a runoff of $\frac{3}{8}$ inch in 24 hours. A flood in 1938 proved this capacity to be inadequate, and a special assessment was levied within the reclamation district to construct a third pumping plant which would increase drainage capacity to $\frac{1}{2}$ inch in 24 hours. Pumping Plant No. 3 (ca. 1939) is located about one and a quarter miles north of San Juan Road on the Garden Highway. A new branch canal about one-half mile long was cut between the West Drainage Canal and the Sacramento River Levee. Original pumping equipment consisted of three, 200-hp, 36-inch Pomona, vertical mix-flow pumps with automatic electrical controls and a combined capacity of 9 acre-feet per hour.

During a refurbishment in 1992, all of the original pumps were replaced. Two of the pumps were replaced with pumps of similar capacity as the original pumps, but one

pump was increased to 300 hp. The horsepower rating of an original motor was increased by rewinding its armature to power this pump.

Pumping Plant No. 3 and its branch canal are a part of the historic drainage system. The location and function of the pump and canal within the drainage system remain unchanged. Changes to its materials are the result of modernization required to maintain the function of the plant.

Pumping Plant No. 4

Pumping Plant No. 4, built in 1964, originally consisted of one 300-hp, vertical-lift pump located on the Cross Canal at the North Drainage Canal. Two additional pumps have been added: a 400-hp pump was added in 1985 (becoming operational in 1986) and another 400-hp unit in 1989.

Pumping Plant No. 4 is not a part of the historic drainage system.

Pumping Plant No. 5

Pumping Plant No. 5 was installed in 1965 to accommodate runoff from the Sacramento Metropolitan Airport. The costs for operating and maintaining this plant are paid by Sacramento County. The plant discharges from an extension of the West Drainage Canal into the Sacramento River about one mile south of the I-5 bridge. The plant originally consisted of one 100-hp, vertical-lift pump with a capacity of 2.5 acre-feet per hour, which subsequently was augmented to a total of three such pumps.

Pumping Plant No. 5 and its branch canal are not a part of the historic drainage system.

Pumping Plant No. 6

Pumping Plant No. 6, installed in 1974, consists of three vertical-lift pumps: a 125-hp unit, a 200-hp unit, and a 300-hp unit. This plant was constructed pursuant to an agreement with the City of Sacramento to handle storm-drain runoff from developed areas in the southeastern part (South Natomas) of RD 1000. Its branch canal connects to the East Drainage Canal midway between Elverta and Elkhorn Roads.

Pumping Plant No. 6 and its branch canal are not a part of the historic drainage system.

Pumping Plant No. 7

Plans were made for a pumping plant (Pumping Plant No. 7) at the intersection of I-80 and Northgate Boulevard under an agreement with the City of Sacramento, and right-of-way was purchased in the late 1970s. The plant was not constructed, however, and Pumping Plant No. 8 now serves the area originally intended for this plant.

Pumping Plant No. 8

Pumping Plant No. 8 is located near the north end of Northgate Boulevard about 3/4 of a mile north of the site originally intended for Pumping Plant No. 7. It was constructed in 1983 and has a combined capacity of 47 acre-feet per hour. Pumping Plant No. 8 drains the area south of Del Paso Road, east of the East Levee, north of I-80, and west of the East Drainage Canal. A branch canal was built that connects to the East Drainage Canal.

Pumping Plant No. 8 and its branch canal are not a part of the historic drainage system. They were built after the period of significance had ended. It augments, but does not change, the original design of the system.

Road System

Today, the road system built by the Natomas Company as part of its reclamation plan for RD 1000 remains intact. All of the major roads exist, and they and the canal system continue to define the overall spatial pattern of the district; they continue to define large blocks of fields. It is only in the southern portion of the district (south of I-80; east of Sorrento Road; south of Del Paso Road between I-5 and the East Levee) that there have been any additions to the road system. It is of note that it is in this area that the overall spatial patterns of the district have changed. The addition of roads in the south as commercial and residential development increased resulted in the breakup of the large field patterns or blocks of land that are characteristic of this landscape. However, just as visible as this change is the continuity of the large open spaces and blocks of fields that exist in the rest of the district. Here the roads continue to function in the same way; they are for the most part two-lane, rural roads providing access across and through the district. They are surrounded by open, agricultural fields in the same way as they would have been in the 1920s or 1930s.

There are places that the two-lane roads are wider than they would have been in the period of significance (1911-1939); this change is comparable to the modernization of

pumps in the pumping plants. The roads were widened to conform to modern highway standards. The roads still maintain their historic location (alignment) and design (function within the overall road system), and they continue to define the spatial framework. This widening is evident as paved shoulders or as wider lanes. This tends to be found in the portion of roads that are east of State Route 70/99 (SR 70/99). The portion of the roads on the west side of SR 70/99 tend to lack paved shoulders and maintain their historic character to a greater degree. Exceptions to this are Del Paso Road and San Juan Road on the east side of I-5; here these roads have lost their historic character. Del Paso is now a four-lane road and San Juan is a two-lane and four-lane road. El Centro Road is the other historic road that has noticeably changed in character and function. It is now SR 70/99 north of I-5 and is a four-lane divided highway. Descriptions of the individual roads are provided below.

GARDEN HIGHWAY

Today, the Garden Highway still follows its original route, although the southern portion of the road between Northgate Boulevard and Orchard Lane has been widened to provide for increased traffic in this portion of the district. The highway leaves the top of the levee at two places between Northgate Boulevard and the office of RD 1000: at its intersection with I-5 and from approximately 1,500 feet west of Northgate Boulevard to Northgate, its southern terminus. The area from Northgate Boulevard to the office of RD 1000, 1633 Garden Highway, goes through an intensely developed area of housing, office parks, and businesses. There are street lights, traffic signals, and paved shoulders, none of which were a part of the original road. The road varies from two lanes to four lanes along this section. The character of the road is very different from that north of the RD 1000 office. The portion of Garden Highway from Orchard Lane to Northgate Boulevard maintains its function within the road system; however, the location (alignment) and materials of the road have been changed.

From the RD 1000 office northward, the road retains its rural character and provides a means of viewing the agricultural lands of RD 1000 and the Sacramento River. It is a two-lane, paved road with 4-foot graveled shoulders. The Garden Highway continues north to the Cross Canal, the northern boundary of RD 1000. It then continues along the crown of the River Levee in RD 1001 to about one-half mile north of Nicholas. It is bounded by residential housing mixed with open space on the river (west) side and agricultural land on the east. The portion of Garden Highway from Orchard Road to the Cross Canal retains its original location, materials, and function within the road system.

EAST LEVEE/NATOMAS ROAD

East Levee/Natomas Road follows the East Levee from Northgate Boulevard to Howsley Road. The road is called East Levee Road in Sacramento County and Natomas Road in Sutter County. It is a narrow, paved, two-lane road. The road retains its original alignment and width. In the southern portion of the district, from Northgate Boulevard to Del Paso Road, the road passes along the edge of housing and commercial development. It is only north of Del Paso Road that the development lessens and the road is again connected to agricultural land. The road has been gated between West El Camino Road and Del Paso Road; it is a gravel road for this section. From the East Levee/Natomas Road, there is a panoramic view of the flat, agricultural land of RD 1000 to the trees along the River Levee in the horizon. The location, materials, and function of the East Levee/Natomas Road within the overall road system remain unchanged.

The lateral road system consists of six roads running east/west and two roads running north/south. The east/west road system generally follows the land survey system. These six roads are roughly equidistant and are approximately two miles apart. The roads in the northern, agricultural portion of the district are the least changed. They are two-lane, paved, rural roads through agricultural fields. The roads in the southern portion of the district have been improved (widened) to meet the demands of increased traffic, although they generally maintain their original location (alignment) and function within the road system and continue to define spatial patterns.

SANKEY ROAD

Sankey Road is the northernmost of the east/west roads within RD 1000. It begins at the Garden Highway at Verona (Joe's Marina) and goes easterly across the district to the Cross Canal. It crosses the canal via a bridge and continues until it intersects Locust Road at the Sutter/Placer County boundary. It is a two-lane, rural road through rice fields from Garden Highway to Powerline road; from Powerline Road to SR 70/99, it is a gravel road; then from SR 70/99 to Natomas Road, it is a paved road. It has retained its location, materials, and function.

RIEGO ROAD

Two miles south of Sankey Road is Riego Road. Riego Road begins at the Garden Highway and continues easterly to the Natomas East Main Drainage Canal. It crosses the canal and continues as Base Line Road through Sutter County into Placer County. The road is along the baseline between Township 11N and Township 10N. It is a paved, two-lane rural road. It retains its historic location, alignment, materials, and function.

ELVERTA ROAD

Two-and-one-half miles south of Riego Road is Elverta Road, the second of the lateral roads that pre-dates the reclamation efforts. It begins at the Garden Highway and continues eastward across the district. It crosses the Natomas East Main Drainage Canal and continues through Sutter and Placer counties as Elverta Road until it intersects Watt Avenue. From Garden Highway to SR 70/99, Elverta Road has retained its historic location, alignment, and function. From SR 70/99 to Natomas Road, it is still a two-lane road, although it has been widened with paved shoulders.

ELKHORN BOULEVARD

Two miles south of Elverta Road is Elkhorn Boulevard. It begins at the Garden Highway, but it is no longer a continuous road across the district. It stops at the western boundary of the Sacramento Metropolitan Airport, starts again at the airport's eastern boundary, and continues eastward across the district to the Natomas East Main Drainage Canal. It crosses the canal and continues through Sutter and Placer counties as Elkhorn Boulevard. From Garden Highway to the western boundary of the airport, Elkhorn Boulevard retains its historic location, materials, and function. It is a narrow, paved, two-lane, rural road. From the eastern boundary of the airport to Natomas Road, the alignment of the road appears to have been shifted slightly. The original road bed is still visible; to the south of the current road from Powerline to SR 70/99; and north of the current road from SR 70/99 to Natomas Road. The road is still two lanes in these areas, but it has been widened and now has paved shoulders. Even with these changes, the road still maintains its historic function within the overall road system as access through the district and as part of the spatial, organizing framework of the district.

DEL PASO ROAD

Two miles south of Elkhorn Boulevard is Del Paso Road. It begins at Powerline Road and continues eastward across the district to the Natomas East Main Drainage Canal. It crosses the canal and becomes Main Avenue. The road retains its original alignment. From Garden Highway to west of I-5, the road retains its historic function. In this section, it is a two-lane road with narrow, gravel shoulders and is surrounded by agricultural land. East of I-5 to East Levee Road, it becomes a four-lane road with paved shoulders. The Arco Arena is located just east of I-5 off Del Paso Road. The land south of Del Paso Road between the interstate and Sorrento Road is now vacant, and it is not used for agriculture. The area east of Sorrento Road to the levee contains

housing and commercial developments and has no connection to its agricultural past. Del Paso Road, east of I-5, serves as a dividing line between agricultural land to the north and land that is developed to the south.

SAN JUAN ROAD

San Juan Road, two miles south of Del Paso Road, was part of the original road network, unnamed on the 1921 district map. It begins at the Garden Highway and continues eastward till it intersects Northgate Boulevard and ends. It originally ended about three-quarters of a mile east of Northgate Boulevard (Lower Marysville Road). From Garden Highway to west of I-5, the road has retained its historic alignment and function. West of I-5, it still goes through agricultural fields, albeit fields that are increasingly under the same development pressure that has already transformed the area south of I-80. East of I-5, the road no longer has a connection or association with its rural past. It is an improved, two- and four-lane road through large, residential subdivisions.

BAYOU WAY

Bayou Way historically traversed the district from one half mile west of Powerline Road to East Levee Road. Today, it exists as a parallel access road south of I-5. Its alignment has been adapted to provide access to I-5 and it now bears little relationship to its historic location or function. Today, it begins at Airport Boulevard and continues eastward until it intersects El Centro Road. It does not contribute to the reclamation landscape of RD 1000.

There were two main north/south lateral roads: Power Line Road and El Centro Road.

POWERLINE ROAD

Powerline Road is a paved, two-lane road. It begins at the Garden Highway and continues northward, past Barney Mound. At Barney Mound the road is gated and it continues unpaved through a field for approximately one quarter mile. The road retains its historic location, materials, and function within the road system. By driving along the length of this road, it is possible to experience the scale of the district and to see its connections to the historic setting, association, and feeling that set RD 1000 apart from the surrounding area. It still travels through large, open, agricultural fields, although the area south of I-5 is increasingly under pressure as commercial and residential development from South Natomas spreads westward.

EL CENTRO ROAD

El Centro Road originally began at the Garden Highway and continued northward to San Juan Road. It then began again just north of the West Drainage Canal and continued to Riego Road. Today, the road begins at Garden Highway and ends south of I-80. The alignment of this portion of the road has been changed since 1939. The road then resumes north of I-80 and continues as a two-lane, paved road until it intersects with Bayou Way. This portion of the road maintains its historic location and still contributes to the spatial organization of this area. The road begins again north of I-5 as SR 70/99 and continues to the boundary of RD 1000 at which point it crosses the Cross Canal and continues into RD 1001. The portion of the road from Riego Road to the Cross Canal was not a part of the original road system. SR 70/99 is a major, regional connector to Marysville and Yuba City. It is a four-lane, divided highway. The road in effect cuts the district into two sections, and although it is surrounded by agricultural land, the width of the road, like that of an interstate, separates it from its surroundings. The road no longer serves as a portion of the spatial framework. This change of function along with the changes to alignment and materials results in it being a noncontributor to the reclamation landscape.

UNPAVED RIGHTS-OF-WAY

There is another layer of the historic road system that continues to exist today; these are the unpaved roads that serve as rights-of-way between fields. These roads existed on the 1921 map and 1937 aerial photographs. They for the most part are unnamed, although there are older road signs throughout the district that designate some of these roads. Descriptions of several of those that were named on the 1921 map are given below as examples. Driving on any of these graveled roads provides access to the landscape and adds to the historic setting and feeling of the landscape. They are a strong connection to the rural landscape that was experienced via narrow, unpaved roads at a slower pace and in relative isolation from the development of South Natomas and Sacramento.

Meister Avenue

Meister Avenue originally began at School House Road and continued to El Centro Road. It was located south of Elkhorn Boulevard and north of Bayou Way. Today, Meister Avenue still exists as an unpaved road, although it is on property owned by the Sacramento Airport.

Lone Tree Road

Lone Tree Road historically was located between Powerline Road and El Centro Road. It was a north/south road that began at the West Drainage Canal and continued northward until it intersected the East Drainage Canal. Today, Lone Tree Road continues to exist as an unpaved right-of-way road in the same location.

Miller Road

Miller Road (Bryte Bend Road) historically began at Garden Highway and continued north to San Juan Road. Today, it continues to exist as an unpaved, right-of-way in the same location.

Reservoir Road

There is another group of gravel roads located just west of the Sacramento Airport: Delta, Reservoir, Walnut, and School House roads. These roads are accessible from Garden Highway at the location of the Elkhorn irrigation pumping plant. They provide access to fields and to houses located along Reservoir and Walnut roads.

NEW ROADS

The addition of new roads has been largely confined to new development in the southern portion of the district (south of I-80 and south of Del Paso Road between the East Levee and I-5). There are numerous new local roads that are a part of housing and office park developments built in the 1970s and 1980s; however, the two interstates have had the greatest impact on the district. Interstates 5 and 80 now bisect the landscape of RD 1000 and provide regional access. I-5 provides access to the north and south. It has interchanges at Garden Highway, West El Camino Avenue, San Juan Road, Del Paso Road, and Airport Boulevard. I-80 provides access to the east and west, with interchanges at Northgate Boulevard, I-5, and West El Camino Avenue.

Both of these interstates are imposing visual features in the flat landscape. They have contributed to the real estate development in the southern portion of the district. Interstates have a way of neutralizing the distinguishing characteristics of the landscapes they travel through, and this is true in RD 1000. These interstates have no connection to the historic road system, land use, or other characteristics of the district's landscape; they were developed through and over these features, and disrupt the rhythm and scale of the landscape. The connection they provide to the region has removed some of the isolation that is inherently a part of a rural landscape.

Large Scale Land Patterns

The patterns of spatial organization in the early reclamation landscape of RD 1000 were a product of drainage canal and ditches and the road system both elements of Natomas' reclamation plan. The landscape is contained within the boundaries defined by the levees that encircle the district. The levees as well as the other major elements of the reclamation plan were designed by engineers. They first laid out the interior drainage canals in precise and largely straight lines. Then they laid out the land divisions and roads to follow the rectilinear land survey system that predated the reclamation plan. The land was sold in much larger acreages than had been platted, so the spatial patterns that would have resulted from 55,000 acres of small, 40-acre, family farms did not materialize. The landscape was characterized by large blocks of fields. The fields were created by intersections of canals and roads. This pattern continues with the intersection of smaller ditches and unpaved rights-of-way. This spatial pattern has continued to characterize the landscape of RD 1000. Aerial photographs from the 1930s through 1990s graphically illustrate this pattern. They also illustrate the distinctiveness of this pattern within RD 1000. Land to the north in RD 1001 resembles RD 1000 to a great degree. However, land to the east and south of the East Levee is divided into much smaller parcels and does not contain the same character or spatial organization.

The field patterns are reinforced by other linear elements in the landscape: the ditches that border the fields and line both sides of the roads, the trees and plants that grow along the canals and ditches, the telephone poles along the roads, and fence lines. Farmsteads were clustered along the Garden Highway or in isolation along one of the main roads through the landscape. This is still the case in the area that contributes to the reclamation landscape, although there are now more buildings within the landscape. The basis for determining the historic spatial organization was an examination of 1937 aerial photographs. Roads and canals from a 1921 map and early topographic maps were identified. Current USGS maps and 1984 and 1991 aerial photographs were compared to the 1937 aerials to identify canals, ditches, roads, and rights-of-way that have remained unchanged. It is not coincidental that the areas that maintain their historic land patterns are the areas in which the drainage canals and roads are unchanged.

The acceleration of commercial and residential development in South Natomas in the 1970s was the catalyst for changes to this spatial organization in the southern portion of the district. Development before the 1970s merely infilled existing field patterns and relied on existing street patterns. Development since the 1970s bears no relationship to historic field patterns, canals, and streets. I-5 and I-80 have also changed the spatial organization of the southern portion of the district. These two highways have no physical

connection to the reclamation plan of RD 1000. They were not built to respond or contribute to the existing pattern of the levees, canals, roads, or fields within the district. Development since the 1970s, together with the construction of the interstates, is creating a pattern of spatial organization different in scale, shape, and density to what existed in the south prior to the interstates' presence.

The original pattern of spatial organization has been lost in the area south of I-80. Large fields are no longer predominant in this area. Housing and office developments do not relate to the form of field patterns. New roads have been built to supplement historic roads. The landscape is not structured or defined by the drainage system. The open vistas of the landscape have been broken by the dense buildings that now characterize this part of RD 1000.

The portion of the landscape south of Del Paso Road, east of I-5, and north of I-80, is in transition. The description in the preceding paragraph could also be used to describe this area, although this area has more open space in the form of vacant fields. These vacant fields are the last reference to the spatial patterns of the reclamation landscape.

Noncontributing Resources

The noncontributing resources are as follows:

DRAINAGE SYSTEM

Pumping Plant No. 4; Pumping Plant No. 5 and its branch canal from the plant to its intersection with the West Drainage Canal; Pumping Plant No. 6 and its branch canal from the plant to its intersection with the East Drainage Canal; and Plant No. 8 and its branch canal from the plant to its intersection with the East Drainage Canal.

ROAD SYSTEM

Garden Highway from Orchard Lane to its intersection with Northgate Boulevard; Elkhorn Boulevard from the eastern boundary of the Sacramento Airport to East Levee Road; Del Paso Road from its intersection with I-5 to its intersection with East Levee Road; San Juan Road from its intersection with I-5 to its intersection with Northgate Boulevard; SR 70/99 (El Centro Road) from its intersection with I-5 north to the border of RD 1000; I-5; and I-80. All roads within the area bounded as follows: Sorrento Road to the East Levee Road; south of Del Paso Road between the East Levee and I-5; and south of I-80.

LARGE-SCALE LAND PATTERNS

The area bounded as follows: Sorrento Road to the East Levee; south of Del Paso Road between I-5 and the East Levee; south of I-80. The Sacramento Metropolitan Airport is the other area that is noncontributing; it is bounded by a chainlink fence around its perimeter; the area within this fence is noncontributing.

LAND USES AND ACTIVITIES, VEGETATION, BOUNDARY DEMARCATIONS, AND BUILDINGS AND STRUCTURES

Land uses and activities, vegetation, boundary demarcations, and buildings and structures in the contributing areas of the district are not directly associated with reclamation. They generally are more closely tied to agriculture. These include the irrigation system, farm structures and houses. Other structures and buildings are associated with community development and do not contribute to the reclamation landscape. These include schools, other municipal structures, commercial structures, electric powerlines, radio towers and microwave stations, and houses.

Land uses and activities, vegetation, boundary demarcations, and buildings and structures located in the noncontributing areas are noncontributors. They are directly tied to agriculture or the residential and commercial development of South Natomas rather than to the reclamation of RD 1000.

These noncontributing resources account for 16 percent of the land in RD 1000 and are concentrated in the southern portion of the district (Dames & Moore 1996).

Boundaries

The boundaries of the RD 1000 rural historic landscape district are as follows:

The northern boundary is the center of the Cross Canal, equidistant between the toe of the southern side of the RD 1001 Cross Canal Levee and the toe of the northern side of the RD 1000 Cross Canal Levee.

The eastern boundary is the toe of the western side of the Sacramento Northern Railway levee from its intersection with the northern boundary southward to Sankey Road; at this point the eastern boundary is 200 feet east of the toe of the eastern side of the RD 1000 East Levee southward past Del Paso Road for six tenths of a mile; at this point the eastern boundary is the toe of the western side of the Western Pacific Railroad levee.

The southern boundary is the southern edge of the Natomas East Main Drainage Canal; at that point where the Natomas East Main Drainage Canal meets the Sacramento River, the southern boundary is the eastern (northern) edge of the Sacramento River.

The western boundary is the eastern edge of the Sacramento River.

Universal Transverse Mercator Coordinates

The contributing features and corresponding Universal Transverse Mercator (UTM) coordinates are as follows:

District

District:	2. 618 960	4291 880
	2. 627 660	4298 690
	2. 639 260	4274 440
	2. 618 740	4272 160

Drainage System

East Levee:	2. 627 600	4298 360
	2. 629 680	4273 670

River Levee:	2. 621 400	4293 130
	2. 629 680	4273 670

Cross Canal Levee:	2. 621 400	4293 130
	2. 627 600	4298 360

Natomas East Main Drainage Canal:	2. 630 660	4292 360
	2. 629 460	4273 440

Cross Canal:	2. 627 600	4298 400
	2. 621 340	4293 090

Pleasant Grove Canal:	2. 627 600	4298 400
	2. 630 300	4293 270

Pumping Plant No. 1-A:	2. 628 540	4273 890
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Pumping Plant No. 2:	2. 621 560 4287 640
Pumping Plant No. 3:	2. 625 060 4278 190
Canal connecting Pumping Plant No. 3 and West Drainage Canal:	2. 625 060 4278 190 2. 625 920 4278 200
North Drainage Canal:	2. 623 420 4295 190 2. 621 620 4287 620
East Drainage Canal:	2. 625 020 4289 340 2. 629 510 4276 360
West Drainage Canal:	2. 621 250 4281 050 2. 628 560 4275 680
Natomas Main Drainage Canal:	2. 628 600 4275 540 2. 628 560 4273 880
Drainage ditches within the areas of contributing large scale land patterns:	2. 611 960 4286 520 2. 627 660 4298 690 2. 635 120 4285 280 2. 626 580 4273 020
Road System	
Garden Highway from Orchard Lane north to the Cross Canal:	2. 621 320 4293 170 2. 628 180 4273 850
East Levee/Natomas Road:	2. 627 970 4298 020 2. 632 840 4273 850
Sankey Road:	2. 621 400 4293 130 2. 630 270 4293 240
Riego Road:	2. 622 320 4289 700 2. 630 050 4290 920

Elverta Road:	2. 621 210 4285 800
	2. 631 600 4285 990
Elkhorn Boulevard from Garden Highway to the western boundary of the Sacramento Airport:	2. 619 100 4282 560
	2. 621 630 4282 580
Del Paso Road from Powerline Road to its intersection with I-5:	2. 623 940 4279 410
	2. 627 130 4279 400
San Juan Road from Garden Highway to its intersection with I-5:	2. 625 420 4276 210
	2. 628 960 4276 310
Powerline Road:	2. 623 660 4295 120
	2. 623 970 4278 740
El Centro Road from north of I-80 to its intersection with Bayou Way:	2. 627 130 4280 340
	2. 627 280 4274 560
Right-of-way roads within fields in the areas of contributing large scale land patterns:	2. 611 960 4286 520
	2. 627 660 4298 690
	2. 635 120 4285 280
	2. 626 580 4273 020

Large Scale Land Patterns

Land area that is comprised of open fields formed by the intersection of the canals and roads in the area bounded as follows: west of the East Levee; west of Sorrento Road; north of Del Paso Road between the East Levee and I-5; west of I-5 from its intersection with Del Paso Road to its intersection with I-80; north of I-80 from its intersection with I-5 to the River Levee; east of the River Levee; and south of the Cross Canal Levee:

2. 611 960 4286 520
2. 627 660 4298 690
2. 635 120 4285 280
2. 626 580 4273 020

These contributing resources and large-scale land patterns account for 84 percent of the area within RD 1000 (Dames & Moore 1996).

II. HISTORICAL INFORMATION

The following history of the RD 1000 Rural Historic Landscape District is taken from the *Historic Properties Treatment Plan for Reclamation District 1000 Rural Historic Landscape District* (Dames & Moore 1996), summarized from the *Rural Historic Landscape Report for Reclamation District 1000* (Bradley and Corbett 1996), with minor editorial changes.

RD 1000 is one of a handful of major reclamation districts in the Sacramento Valley which were established following enabling legislation in 1911-1913 and which were a key element in the thorough social, economic, and physical transformation of the region in the period that followed. Before reclamation, the Sacramento Valley regularly flooded extensively; permanent settlements were repeatedly threatened, property destroyed, and lives lost. The framework for flood control in the Sacramento Valley evolved over 60 years, from the 1850s to 1910s, and came to involve not only flood control but reclamation and irrigation. Once the physical structures of reclamation (the levees, drainage canals, and pumphouses) and the associated flood control plan were in place, and the plan had been implemented over many years, the floods of the Sacramento Valley were largely contained, the land was drained, cleared of tules, developed for agriculture, and settled by farmers. What had been a vast seasonal swamp became some of the most productive agricultural land in California. What had been an unbroken, almost impassable region was ordered into productive reclamation districts which its builders described as the "Holland of California."

RD 1000 was among the first and the largest of these major reclamation districts, and because of its proximity to Sacramento, one of the most visible. To understand the history of RD 1000 and its particular significance, it is necessary to understand the complicated story of efforts at flood control and reclamation in the Sacramento Valley, as well as the history of the Natomas Company which created and developed it. The history which follows is organized to (1) present the context within which RD 1000 developed and against which it must be seen to understand its significance, and (2) the specific history of RD 1000 and its developer, the Natomas Company.

Setting

In its natural condition, the Sacramento River flooded almost every winter, creating a shallow lake over 100 miles long and up to 50 miles wide. Winter rains and spring runoff, especially from heavy snowfall in the Sierra Nevada, ran into the Sacramento River from the Yuba, Bear, Feather, and American rivers along the east and from Cache Creek and others along the west. The seasonal fluctuations in river flow were far greater

than in any other major North American river system which had been encountered as Euroamerican settlers made their way west across the United States. The Sacramento and other major rivers contained dry season flow within their banks but routinely flooded with winter rains. During flood time, natural levees were created along the banks of the rivers, and the river bottom gradually built up so that beyond the natural levees were natural basins, lower than the river. Floodwaters filled these basins, which took many months to gradually dry from seepage or runoff. The natural levees were the only high and dry ground during floods. When the annual seasonal lake finally dried up, usually by midsummer, the land that remained was nearly as impenetrable and useless for agriculture or grazing as the lake.

With the influx of people associated with the gold rush, conditions in the Sacramento Valley threatened travelers to the mines and threatened the new settlements, including Sacramento, Marysville, Yuba City, Colusa, and a few farmers along the levees. With the beginning of hydraulic mining in 1853, which washed whole mountains of rock and soil debris into the river system, the river beds began to rise. In the late 1860s, the scale and power of hydraulic mining increased substantially, the amount of debris washing into the rivers increased, the river beds continued to rise, and the effects of floods, which deposited rocky debris along what had been the best farmland along the banks of rivers, worsened.

Reclamation and Flood Control in the Sacramento Valley

Flooding, and its effect on the usefulness of land, was among the earliest public issues to face the new settlers to California. Because it proved to be an enormously difficult issue to deal with both politically and practically, flood control and protection continued to be at the forefront of important public issues for many decades. California became a state in September 1850, the same month that the U.S. Congress passed the Arkansas Act which granted all public swamp and overflow lands to the states. The state made provisions to dispose of these lands in 1855 and 1858 by delegating the survey of swamplands to the counties. Once the swamplands were surveyed, they could be sold to private parties (who had to meet various conditions before receiving the permanent title). Of the first buyers of swamplands, a few tried to direct floodwaters by building river levees, and drain flooded or flood-prone land by digging ditches. These first efforts to address the problem were the uncoordinated efforts of private individuals with minimal government involvement and had little or no effect on the problem.

An attempt to address the problem on a regional basis, coordinated by a centralized governmental authority, was made with the enactment of Assembly Bill (AB) 54 by the state in 1861. This established the first public commission in the state: the Board of

Swamp Land Commissioners. The fact that this was the first public commission and that such an entity represented a major innovation in state government is a measure of the public interest in the problem. Under AB 54, the Board of Swamp Land Commissioners could establish swamp land districts with boundaries equal to those of the natural basins, and could direct the building of levees and other structures. The American Basin, which entirely contains the area that later became RD 1000, was designated as Swamp Land District 1. Construction was begun in 1863, and by November 15, 1865, there were 26 miles of levees and 20 miles of drainage canals. The work was not completed because of the Civil War and the subsequent modification of AB 54 by the state legislature.

An action with a longer-lasting effect was the 1868 Green Act, which for the first time permitted the purchase of unlimited amounts of swampland (buyers had previously been limited first to 320 acres and then to 640 acres), and which allowed any group of swampland owners to form a swamp land district without regard for the relationship of the boundaries of that district to any natural basin, as was the case under AB 54. Utilizing the relaxed terms for receiving permanent titles to their lands, under the Green Act, swampland owners had gained greater control over swamp land districts, which were empowered to raise money for the construction of levees and other structures. The Green Act therefore resulted in a land rush and the buying up in large holdings of almost all of the still plentiful state-owned swampland by relatively few individuals. It also resulted in the establishment of many new swamp land districts. Although land holdings were larger, the swamp land districts were often comprised of fewer members, and sometimes included the property of just one individual.

While these various efforts and others were being made, the floods continued to occur as before. If anything, their effects became worse. The types of localized flood control measures taken often intensified flood damage, and the debris washed into the rivers by hydraulic mining continued to be deposited on more and more farmland. In 1878, a group of farmers formed the Anti-Debris Association to stop hydraulic mining. In January 1884, hydraulic mining was completely stopped by the courts. In 1892, the Caminetti Bill in the U.S. Congress established the California Debris Commission as a federal agency to address the ongoing problems of the washing of old debris into the rivers, because it created obstacles to navigation.

After 50 years of failed efforts to address either the political or the practical problems of flood control, a new consensus began to develop in 1902 about what needed to be done. This consensus was supported by an accumulation of scientific data, practical observation, and conceptual advances. The most important early studies were the 1880 report to the State Legislature by William Hammond Hall, the first State Engineer, with its survey of rivers; and the 1894 report to the State Commissioner of Public Works by

Marsden Manson and C.E. Grunsky, which included their plan for flood control. (Both men had worked for Hall in the State Engineer's office.) The Hall report verified the relationship of mining debris to navigation problems and flooding. The Manson and Grunsky plan broke with previous engineering studies and proposed a flood control system that incorporated weirs in the levees which would allow flood water into river "by-passes"; enlarged the mouth of the Sacramento River; and raised levees to a uniform height. This was essentially the plan that would eventually be adopted.

The first step in the development of a consensus was a meeting in Sacramento in 1902 of swampland owners. Then in 1903, the Commonwealth Club was formed in San Francisco as a forum for discussing major public policy issues, among which were flood control and reclamation. The Commonwealth Club sponsored the State River Convention in 1904 and issued a study calling for action on the problem. Out of this meeting, the River Improvement and Drainage Association was formed to study flood control and lobby for action.

The most important study was a report by Thomas H. Jackson (U.S. Army Corps of Engineers) for the California Debris Commission in 1910. The Jackson report clearly stated the connections between the issues of mining debris in the rivers, navigation, and flood control. It called for spending \$933 million on a Manson-and-Grunsky-type plan, including weirs and by-passes, raised levees, and a widened mouth of the Sacramento River. The Jackson report was the basis for a plan, the Sacramento Flood Control project, that was adopted by the state in 1911 and implemented over many years. Full implementation was delayed by funding problems, primarily the contribution of the U.S. government. It was first sent to Congress for funding in 1911, but the first funds were not approved until 1917, and substantial support did not come until the 1930s.

At the same time, a workable framework for flood control and reclamation was established by the state. In 1911, the State Reclamation Board was established with jurisdiction over the new Sacramento and San Joaquin Drainage District's individual reclamation districts and levee plans. Many new districts were created, superseding those created under the Green Act of 1868. RD 1000 was created at this time. In 1913, the State Reclamation Board was given the ability to approve private construction of levees while requiring that they meet the standards of the Sacramento Flood Control Plan. In the absence of federal money in these years, this was an essential feature of the beginning of construction on the plan. The reclamation districts were given the authority to raise taxes to finance the construction of the flood and reclamation plans.

These two developments might not have affected change without two other factors--the emergence of modern corporations as land owners in the reclamation districts, and the development of machinery capable of realizing the large-scale land-moving projects. The reclamation districts formed as a result of 1911 legislation were different from their predecessors. Early districts were often controlled by local landowners, who lacked the funds necessary to complete reclamation plans. The new districts controlled by modern corporations such as the West Sacramento Company (RD 900), the Armour Company (RD 1500), and the Natomas Company (RDs 1000 and 1001) had greater financial resources than private landowners, as well as the management skills to implement large plans, a tradition of reliance on skilled professionals, and the vision to see the connections between public policy and private goals and the linkages between their immediate objectives and other enterprises for large-scale development. The officers and directors of many of these new corporate landowners overlapped with each other and with other corporations with whom there existed or developed mutually supportive relationships. For example, Louis Sloss was a director of the West Sacramento Company, developers of RD 900, and the Natomas Company, developers of RD 1000 and RD 1001. He was also a director of the Northern Electric Railroad, the Alaska Packers Association, and Pacific Gas and Electric Company. With the interests that these companies represented, Sloss was in a position to see the relationships between the development and marketing of hydroelectric power, the reclamation and sale of land for agriculture, and the development of rail and water transportation which carried agricultural products to market. Sloss was typical of the leaders of these companies and his diverse involvements illustrate the way in which flood control and reclamation were taken over in the 1910s by a new type of enterprise.

The development of machinery such as the suction and clamshell dredge that was capable of implementing large-scale land-moving projects was also a factor that contributed to the realization of reclamation districts in the 1910s. These machines had been developed for gold mining. With names such as *Hercules* and *Vulcan*, the power they possessed to dredge tons of earth a day for gold mining was turned to that of transforming the natural landscape to meet goals of reclamation and the flood control plan. In the reclamation district, they were used to create a landscape for modern large-scale agriculture.

American Basin Before Reclamation

In 1861, the entire American Basin was established as District 1 and construction began on river levees in 1863. These levees had little impact on flooding, and the American Basin continued to fill with water nearly every year.

The effect of this flooding severely limited the uses of the land. Seasonal grazing and agriculture were possible on the high ground along the river and other areas not covered with tules or other marsh plants. The land was also used by fishing and hunting clubs, although these had little economic impact on the area.

There were transportation routes across and along the edges of the American Basin and along its adjacent rivers. Steamships and barges traveled on the Sacramento and American Rivers and were the principal means of access to the mines from the beginning of the gold rush in 1849 until the completion of the Central Pacific Railroad in 1869. As long as the river remained navigable, there was regular service between San Francisco, Sacramento and points north, including Colusa on the Sacramento River, and Marysville and Yuba City on the Feather River. River travel was impeded and sometimes stopped altogether by mining debris from the 1850s until after the turn of the century. Landings on the Sacramento River along the west side of the American Basin were used to load local farm products for shipment to market.

While no detailed study was made of land ownership in the American Basin before reclamation, early maps and other sources indicate that some of the land along the rivers was sold to private individuals by the state as soon as the land was surveyed (by extending the federal survey of township, range, and section into the swamplands) beginning in the mid-1850s. Most of the rest of it was sold in the period from 1868 to 1871. From this time, much of the land was held in large parcels of more than 640 acres apiece. These large landholders were speculators who expected the value of their land to increase substantially when the land was reclaimed, and they became active proponents of reclamation.

Transformation of the American Basin

New ideas for reclamation of the American Basin developed in the early 1900s, both in response to the general conditions discussed above which were favoring new reclamation efforts throughout the Sacramento Valley, and as the outgrowth of the particular situations of various business interests. Consideration of the matter was stimulated by a major flood in March of 1907. Several large landowners in the American Basin, with Clarke & Cox chief among them, were receptive to proposals to dispose of or improve the value and productivity of their land. R.G. Hanford, an experienced gold dredger, who had both a practical scheme and a persuasive rationale for reclamation, organized these landowners to petition Sacramento County to establish a reclamation district; the American Reclamation District was created on December 29, 1906.

Hanford commissioned two engineering and cost studies of the district; one by George L. Dillman of the San Francisco engineering firm of Hunt, Dillman, Meredith and Allen, and the other by J.G. White & Company of New York. In a report dated October 2, 1907, Dillman proposed a single district of 50,000 acres with a levee entirely around it, interior drainage canals, a pumping plant, a network of roads, and a system of irrigation with canals and pumps. J.G. White & Company said that such a proposal was feasible if money were available to make the improvements. Hanford then solicited the advice of the Sacramento real estate firm of Howard & Kimbrough, who stated that the money for improvements as well as ample profits could be generated by selling the land; that although there were not enough prospective buyers in California, the land could be successfully sold by advertising in the east as the Southern Pacific Railroad and other developers had done; and that the land could be sold in 10 years.

Role of the Natomas Company

Because the sale of land was projected to take so long, Clarke & Cox withdrew, and Hanford turned to the Natoma Development Company for financial support. Hanford may have already had some relationship with the Natoma Development Company, but it was not until Clarke & Cox withdrew that the Natoma Development Company actively entered the American Basin.

The principal creator of RD 1000 was, in various forms and under various names, the Natomas Company. The Natomas Company was formed in 1851 in Sacramento County to supply water for placer mining and irrigation. Over the years it had grown and evolved, changed its name and spun off subsidiaries. The company had been involved in placer mining for gold, and after 1898, in dredging for gold. The Natomas Company also provided water for irrigation and hydroelectric power (at Folsom), as well as providing water to the city of Folsom. The company was involved in agriculture, including orchards and one of the largest vineyards in California; in land development in the town of Folsom and in eastern Sacramento County; and in rock crushing at used-up dredge sites. With gold dredging appearing to be a profitable basis for future business, in 1906, the Natoma Development Company was formed for the primary purpose of dredging.

As an independent gold dredger, subject to public criticism for destroying good farmland by dredging, Hanford had promoted the idea that reclamation was a means of creating more farmland than would be lost to dredging. As a large dredging company, Natoma Development Company saw the political advantage in such a plan. In addition, Natoma saw the prospect of substantial profits, and was encouraged about the prospects for the American Basin by the expansion in 1906-1907 of the Southern Pacific Railroad shops

across the American River from the district; by the booming population and economy of Sacramento in the aftermath of the 1906 earthquake; by the presence of the Northern Electric Railway along the eastern border of the district, and the imminent construction of the Western Pacific Railroad in the same area; and by the increasing traffic on the Sacramento River created by three steamship lines. Altogether, the location, soil, climate, transportation, proximity of markets, and access to river water for irrigation appeared to make the American Basin suitable for a large reclamation effort such as had been proposed. By the fall of 1908, the Natoma Development Company had purchased options to buy 60,000 acres of swamp and overflow land in Sacramento and Sutter counties. These options were transferred from the Natoma Development Company when it merged with Natomas Consolidated of California on November 11, 1908.

Natomas Consolidated supported eleven large landowners (from whom Natomas Consolidated held options) in the American Basin in their petition to re-establish a reclamation district under the Green Act of 1868. RD 791 (note: referred to by Norwood Silsbee in his history of the company as the American River Reclamation District) was established on January 4, 1909, and included all the swamp and overflow land in Sacramento and Sutter Counties, from Levee District No. 6 in Sutter County to the American River along the east side of the Sacramento River.

For Natomas Consolidated, Hanford commissioned a set of five reports from Stephen E. Kieffer, of San Francisco, on the design of a reclamation plan for the American Basin. Kieffer's reports, prepared in collaboration with George Dillman, developed Dillman's earlier ideas. They were presented on January 1, 1909, with a follow-up report after another serious flood later that month. The major change in Kieffer's proposal was to expand the district north to the south side of the Bear River, to include Levee District 2 and Swampland District 818. To realize this idea, additional studies were initiated which would take a year to complete. During this period, opposition to expansion of the project emerged from Sutter County landowners. The existing levees along the Feather and Bear rivers had withstood the 1909 floods and these property owners saw no need for higher levees, or for the assessments that would be required to pay for them. The result was a modification of Kieffer's proposal that created two separate reclamation districts over the enlarged area, RD 1000 and RD 1001.

Opposition also came from the City of Sacramento, which found that the proposed levees would increase the danger of flooding in the city. This resulted in the omission of land from the district across the American River from Sacramento, so that the levees would be built back from the river and away from the city.

The new districts, RD 1000, and RD 1001 to its north, were created by the State Legislature on April 8, 1911. RD 1000 consisted of 55,031 acres, 44,112 of which were owned by Natomas Consolidated. In a compromise solution, 462 acres of the area across from Sacramento that were left out were included in a separate district established June 13, 1913, called RD 1400. In 1922, RD 1400 was consolidated with RD 1000. The levees and other features of the reclamation system were built around RD 1400 as if it were a part of RD 1000.

Thus, even before the Jackson report was issued in 1910, a sound plan was being developed for the reclamation of the American Basin under the direction of R.G. Hanford and the Natomas Company. This plan called for the creation of two reclamation districts, RD 1000 and RD 1001, separated by a canal. Both districts were established simultaneously with the establishment of the State Reclamation Board.

With the establishment of RD 1000 on April 8, 1911, three trustees were appointed by the County Board of Supervisors: Newton Cleaveland, Emery Oliver, and Frank H. Bennett. Preliminary plans prepared by Oliver, based on the Dillman, White, and Kieffer reports of 1907-1909, were submitted for approval to the boards of supervisors of the two counties and to the State Reclamation Board. The counties appointed assessors to allocate projected reclamation costs among landowners. Based on these projections, landowners of the district voted for a \$2,000,000 bond issue on September 4, 1911.

The districts would consist of levees, drainage canals, pumps, irrigation systems, and roads, all of which would be paid for by the sale of land. After an early idea to include a suburban residential development at the southern end of RD 1000 was discarded, the entire district was envisioned as consisting of family farms of about 10 to 40 acres in size.

Construction of the reclamation infrastructure was slower and more expensive than expected, and there were unplanned problems from floods. The federal government did not join the effort as quickly as had been hoped. Most importantly, the land did not sell, and it was both the money received for the land and the contributions from landowners in the form of taxes that was to pay for the reclamation work. When World War I began in Europe in 1914, the U.S. government turned its attention to that, and as industries geared up for war-related production, workers who might otherwise have been drawn to buy farms were instead drawn to work in factories for war-related production. In addition, there was a huge glut of available land that was all being marketed to the same segments of the population. Just as the land for RD 1000 became available, so did large areas in other reclamation districts throughout the Sacramento Valley.

The results of these problems were a reorganization of Natomas Consolidated as the Natomas Company of California on December 24, 1914, and a second bond issue of \$1,000,000 for reclamation, approved by the voters May 25, 1917. This was followed by a third bond issue of \$6,325,882 for maintenance and operations, approved July 31, 1922.

Despite these changes, and stepped-up efforts to market their land, little land was sold in the 1920s and the company was reorganized again on November 13, 1928, as the Natomas Company. In 1933, the Reconstruction Finance Corporation bailed out farmers in RD 1000, saving most from bankruptcy. In 1942, the company lowered its land prices with the intention of selling it as quickly as possible. Land sales increased rapidly so that only 3,000 acres remained to be sold by 1948 and all of it was sold by 1955. At that time, the Natomas Company's involvement in RD 1000 ended, and they turned over control of the district to the landowners (Dames and Moore 1996).

NATOMAS NEWS

NATOMAS CONSOLIDATED OF CALIFORNIA

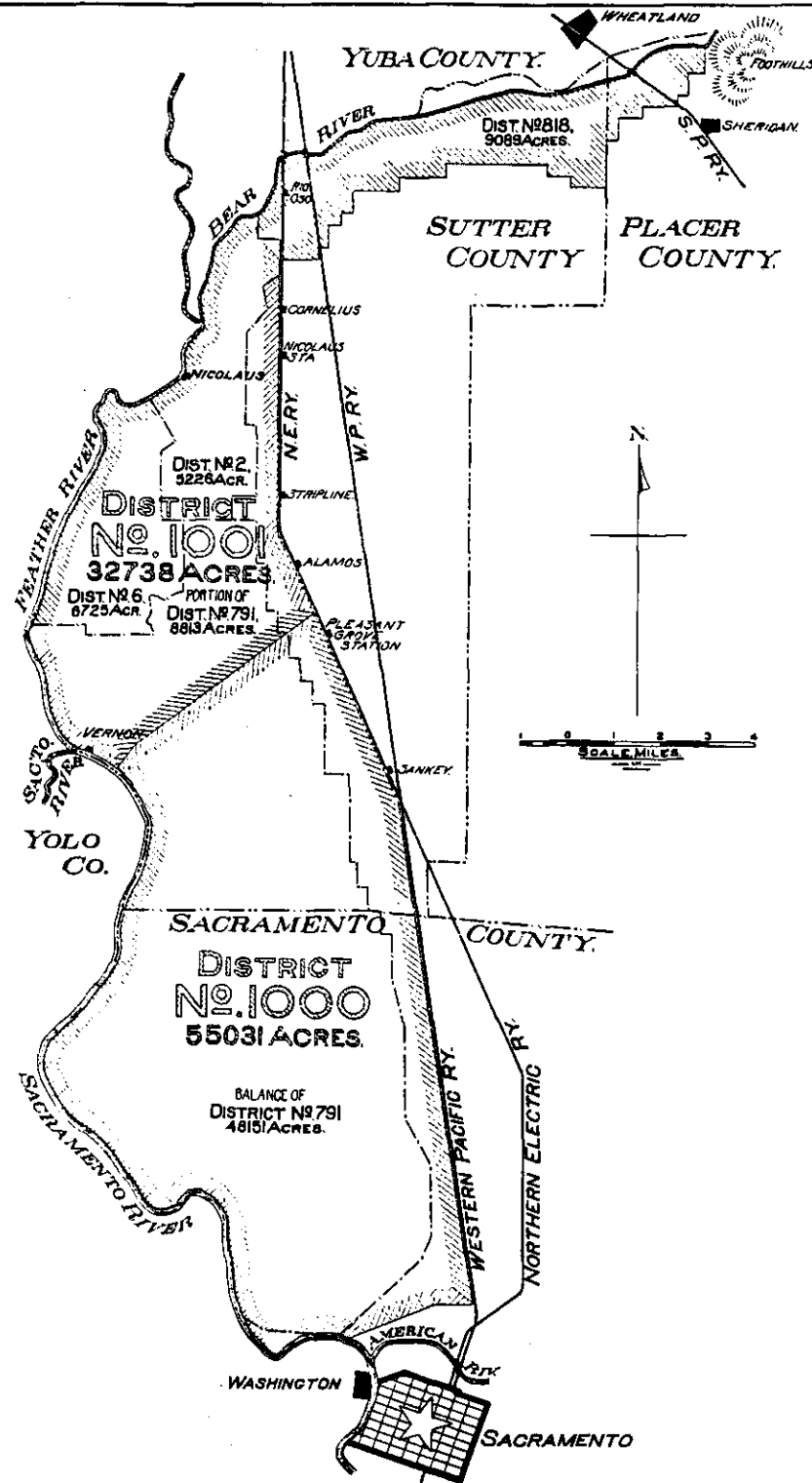
VOLUME 1

SACRAMENTO, CALIFORNIA, APRIL, 1911

NUMBER 2







FACTS ABOUT CALIFORNIA

California is the second State in the Union in area, and the twelfth in population.
The coast line of California is nearly 1,000 miles in length, and the State has an average width of 200 miles.
The total land area of California is 158,360 square

miles—a trifle less than one-twentieth of the area of the entire United States.

Of this 100,000,000 acres of land in the State, two-fifths, or 40,000,000 acres, are arable, the remainder being either desert or mountains too steep for cultivation.

CLIMATE

The Japan current gives the entire State the same general average temperature at points of the same altitude and the same distance from the sea.

The California climate is temperate and equable. On the coast it is cool the year round, with a mean temperature of 55°. In the valleys where the warm summers provide an excellent growing and harvesting season there are greater variations of temperature. The thermometer has been known to drop as low as 20° (above), and not infrequently registers over 100° in the midsummer months. Because of the dryness of the heat this is less objectionable than 85° in the humid Eastern atmosphere. The mean temperature for the valleys during the past twenty-seven years is between 60 and 65°.

RAINFALL

There are two seasons—thaw and the dry. Rain falls during the period from November to April, and almost never during the summer. The average annual rainfall at Sacramento for the past thirty years is 20.20 inches. At Red Bluff, at the northern part of the Sacramento Valley, it was 25.7 inches for the same period. For the past twenty-seven years the United States Weather Bureau reports show an average annual rainfall of 21.24 inches for San Francisco and an average for Los Angeles of 16.08 inches.

POPULATION

The 1910 census reports show that California has a population of 2,377,549. This is an increase of 60% over the figures of 1900. The density of population in California is 15 persons to the square mile.

COMPARATIVE FIGURES

Denmark, with an area of 14,850 square miles, has a population of 2,450,000. Density of population, 165.

The British Isles, with an area of 121,377 square miles, or 77,683,084 acres, had in 1909 a population of 45,008,421. It is interesting to note that 46,876,685 acres out of the whole are under cultivation. Density of population, 371.

The Netherlands, with 12,500 square miles, has 5,100,000 inhabitants. Density of population, 408. Belgium has succeeded in supporting a greater number of persons per acre than any of the above countries. On 11,400 square miles there is a population of 6,700,000. The density of population is 587.

Compare these figures with California's 15 to the square mile.

CALIFORNIA FARMS

There are 100,000 farms in California waiting for settlers. The two great river valleys which stretch north and south for a distance of five hundred miles and are fifty miles wide, are rich and productive. All they need is a greater farming population, and this they will vary shortly acquire.

COMPARE THE STATES SHOWN ON THIS MAP WITH CALIFORNIA.

Ten States	square miles 149,945; population 26,823,533
California	square miles 158,360; population 2,377,549

THE SACRAMENTO VALLEY

The fertile Sacramento Valley, comprising eleven counties, has now a population of 204,998. Its area is 14,873 square miles—practically the size of Denmark and larger than Holland and Belgium. Yet each of those countries supports millions on land not so rich as this river valley. There are but 17,000 farms in the Sacramento Valley, which is at the rate of a little less than one square mile to each farm. One square mile in this valley should be supporting not less than forty small farms.

The valuation of the products raised in the valley for the year 1908, including cattle, lumber and crushed rock as well as fruit and vegetables, was \$109,416,076, according to figures given out by the Sacramento Valley Development Board.

There is no other spot in the world where so great a variety of crops attain to such a high degree of perfection as in the Sacramento Valley.

III. ENGINEERING INFORMATION

The Natomas Company was the principal builder of the overall reclamation plan infrastructure of RD 1000. Although the component infrastructures for the road system and drainage system were linked in concept to the overall reclamation plan, they were designed and built separately. Each system is described below. Specific engineering information on the pumping stations is included in Section I "Description".

The following text describing the features is quoted from the 1996 Dames & Moore *Historic Properties Treatment Plan for Reclamation District 1000 Rural Historic Landscape District*, with minor editorial changes.

Drainage System

Although there is no specific documentation, it seems likely that all of the infrastructures of RD 1000 were designed by engineers within or under contract to the Natomas Company, with the designs based on the reports of Dillman, White, and Kieffer of 1907 to 1909. In 1910, an engineering department was established by Natomas Consolidated. However, beginning August 9, 1911, principal design work on the drainage system was done by the Hammon Engineering Company, which was owned by Wendell P. Hammon, a major stockholder in the Natoma Development Company, and whose chief engineer was S.L.G. Knox. When Knox became General Manager of Natomas Consolidated in 1912, he was succeeded at Hammon Engineering by Emery Oliver, who subsequently also joined the Natomas Company. The contract with Hammon Engineering ended in 1912, and subsequent design work was performed by the company's in-house engineering department. In his history of the Natomas Company, Norwood Silsbee later attributed primary leadership in the design to Oliver.

Once RD 1000 was established, design of the drainage system was overseen by the District Engineer. The first District Engineers were Norton Ware and R.G. Clifford, both former Western Pacific Railroad engineers. The District Engineer submitted the final plans and estimated costs to Natomas Consolidated for approval on February 1, 1912. A contract was let by the RD 1000 on May 27, 1912 to Natomas Consolidated for construction of the drainage system. Natomas Consolidated built the entire system, except for portions of the Cross Canal and East Levees which were subcontracted to the firm of Moreing & Fitzpatrick.

The historic drainage system built by the Natomas Company to protect the American Basin from flooding and facilitate the reclamation of the land consisted of a series of levees that encircled the district. There were three major levees: the East Levee on the east and south protected the district from the American River and its tributaries that drained the hills to the east; the River Levee on the west protected the district from the Sacramento River; and the Cross Canal Levee protected the district from runoff from RD 1001 to the north. Three exterior drainage canals intercepted these flood waters and discharged them to the Sacramento River: the Natomas East Main Drainage Canal on the east and south, the Pleasant Grove Canal on the east, and the Cross Canal on the north. Four branches of the interior drainage canal drained the land within the district and carried water southward to the main pumping plant (Plant No. 1). These were the North, East, and West Drainage canals, and the Natomas Main Drainage Canal. There were originally two pumping plants, Plants No. 1 and 2. Plant No. 1 (1914) was located at the southern end of the Natomas Main Drainage Canal and was the primary pumping plant. Pumping Plant No. 2 (1916) was built to serve both the drainage and irrigation systems. In 1939, Pumping Plant No. 3 was built on the River Levee with a branch canal that extended to the West Drainage Canal. This plant increased the drainage capacity. These levees, canals, and three pumping plants constituted the historic drainage system and remain its key components today.

Work began immediately upon execution of the construction contract; in May 1912 on the River Levee; and in August 1912 on the East Levee. When the levees were nearly finished, a flood in January 1914 damaged the new structures, which consequently were not completed until December 1914. The main drainage canals were begun in March 1913 and finished in January 1917. Pumping Plant No. 1 went into operation in December 1914, and Pumping Plant No. 2 went into operation in January 1916.

Construction of these features required different approaches to design and construction technology. In particular, because the Sacramento River Levee was required to be 800 feet from its counterpart on the west side of the river (under the Flood Control Plan of 1911), the ordinary means of building the levee with dredged material from the river, using a clamshell dredge, would not work. Instead, a suction dredge was used to bring sand to a trough between two earth levees. Ordinary clamshell dredges were used to build the Cross Canal Levee and the portion of the East Levee along the American River. The East Levee was built by horse-drawn excavators. The Cross Canal Levee and East Levee were built of material from the excavations of the cross canal and the Natomas East Main Drainage Canal.

Two factors had to be considered when designing the canals, and more importantly, the pumping plants to drain the area enclosed by the levees of RD 1000. The first factor

was recorded rainfall, which was easily determined from various records. Because the water table in the area was high, it was assumed that the soil would absorb none of this moisture. The second factor that had to be considered was seepage from the Sacramento River during periods of high water, a factor for which no data were available. An assumption was made that seepage would equal rainfall, and a figure of $\frac{3}{8}$ inch of runoff in 24 hours was used to calculate the pumping requirements needed to drain the 52,000-acre area. The combined capacities of Pumping Plants No. 1 and 2 were designed to handle this load. At first this figure seemed satisfactory, but as will be noted below, experience proved pumping capacity to be inadequate and Pumping Plant No. 3 (ca. 1939) was constructed. It was designed solely for storm drainage and only operated at peak flood periods.

Road System

The RD 1000 road system provided for access within the district and for connections to the region. It consisted of two perimeter roads that ran on top of the levees--the Garden Highway and East Levee/Natomas Road. The Garden Highway provided access from Sacramento through the district to points north. The East Levee/Natomas Road provided access along the district's eastern edge. To provide access to drainage canals for construction and maintenance as well as to parcels within the nine subdivisions, a network of 60 miles of dirt roads was graded by the Natomas Company. This lateral road network generally followed the lines of the land survey and with the drainage canals formed a series of large grids that divided the district into large rectangular fields.

Roads were considered one of the key components of Natomas's reclamation plans for RD 1000. As has been noted, the district's proximity to Sacramento was viewed as a selling point for its lands. Sacramento was considered an important market and the center of a much greater distribution network. *Natomas News* stated:

"Sacramento has a distributive territory extending eastward almost over the entire state of Nevada. To the north Sacramento's merchants send their ware into Oregon, and to the south far into the San Joaquin Valley Under the reclamation of this huge tract (RDs 1000 and 1001) thousands of families will be virtually added to the suburbs of Sacramento. A few minutes' ride will take any farmer on Natomas lands to the City of Sacramento."

The road system that Natomas was planning would take advantage of this proximity by providing farmers an easy way to take their products to the Sacramento market.

Natomas News described the system:

"One of the most attractive features . . . (of the Natomas project is) the system of good roads that will afford the settler upon these lands easy access to the market . . . On the reclaimed lands there will not only be the highway on the summit of the continuous levee that will extend forty-eight miles north of Sacramento . . . but lateral systems will (be) connected with this main highway . . . The reclaimed lands will not only have the advantage of railroad, water, and electric trolley transportation, but will be reachable in every part through good roads built of Natomas crushed rock. These manifold and direct means of transportation will place this vast area virtually in the suburbs of Sacramento City."

The premier road within the district was the scenic highway that ran along the crown of the River Levee. The Garden Highway, originally called Natomas Boulevard, was intended to connect the district with points north; however, it was more than just an efficient means of transportation. The picturesque qualities of the Sacramento River and land adjacent to the river were of great interest to the Natomas developers. The virtues of farming and living on the land were often touted in *Natomas News*, and the beauty of the landscape was extolled over and over again. The Garden Highway was to be a means to present this beauty, the means of traveling through the landscape and viewing it. *Natomas News* provided a description of this element of the development:

"When levees being built by Natomas Company of California and the land owners of the two reclamation districts, district 1000 and district 1001, are completed one will be able to ride north from Sacramento for 48 miles along their summit. The tops of the completed levees will then form a continuous levee which will be surfaced off and made an oil rock macadam road, Natomas crushed rock being used. The road will follow the Sacramento river from Sacramento City to Verona . . . One will easily be able to make the drive in an hour or a little more, through one of the most picturesque of California's beauty spots."

The Garden Highway was to afford the motorist ". . . a wonderful opportunity to view the Natomas lands and these (Sacramento and Feather) scenic rivers." Construction of the Garden Highway began in 1917. The Natomas Company built 10 miles of road. It was originally 16 feet wide with a 4-foot gravel shoulder on each side. It was paved with concrete, although it was planned that the road would be covered with black top as the concrete became worn. The highway was completed between 1923 and 1925 in the second phase of building that the Natomas Company undertook, after World War I (Dames and Moore 1996).

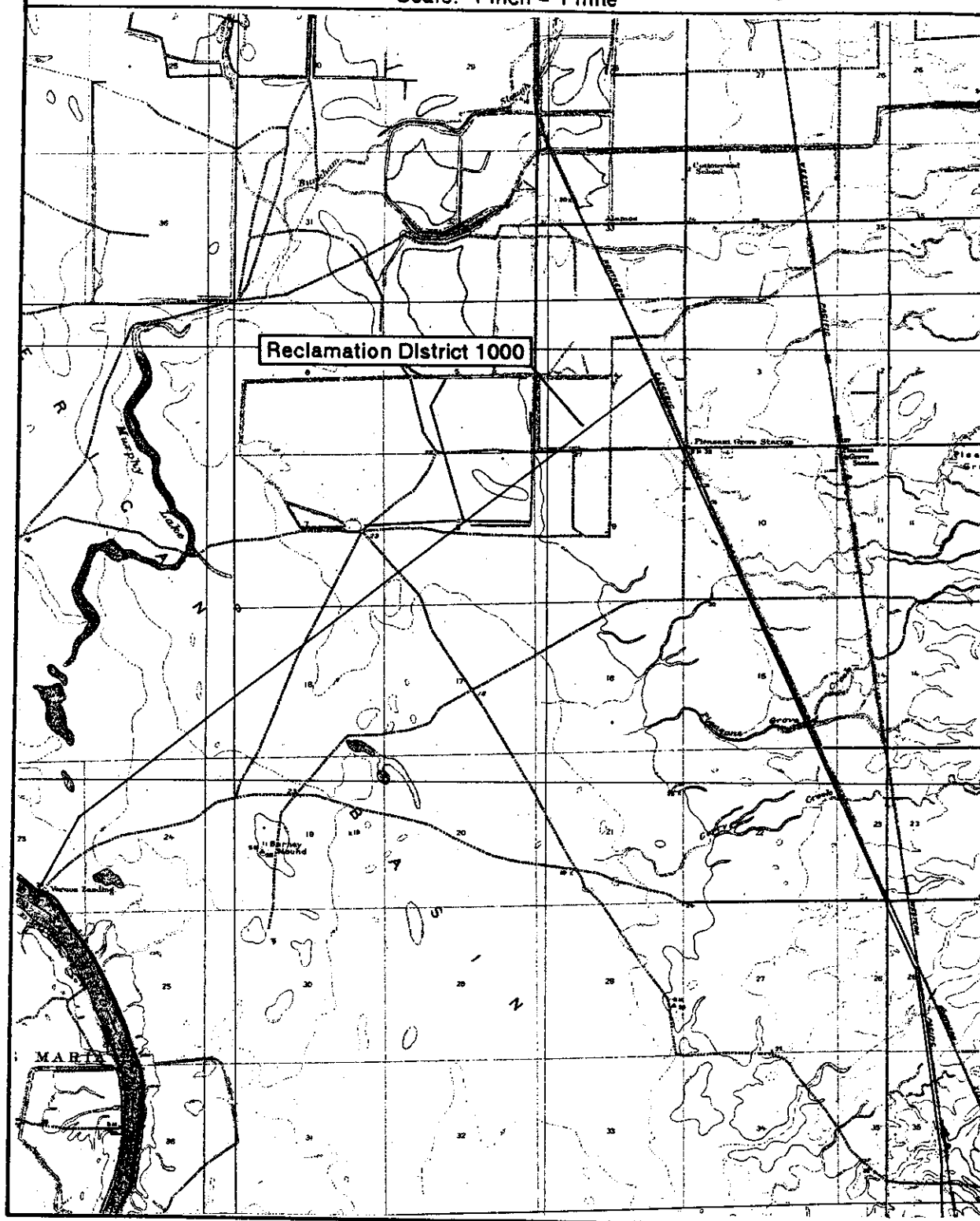
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Vernon 1910 Arcade 1911
Pleasant Grove 1910 Lovdal 1916
Grays Bend 1916 Brighton 1911
Elkhorn Weir 1915

RD 1000

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Page 47

Scale: 1 inch = 1 mile



Composite of USGS 1:31,680 Series Quadrangles:

Vernon 1910

Arcade 1911

Pleasant Grove 1910

Lovdal 1916

Grays Bend 1916

Brighton 1911

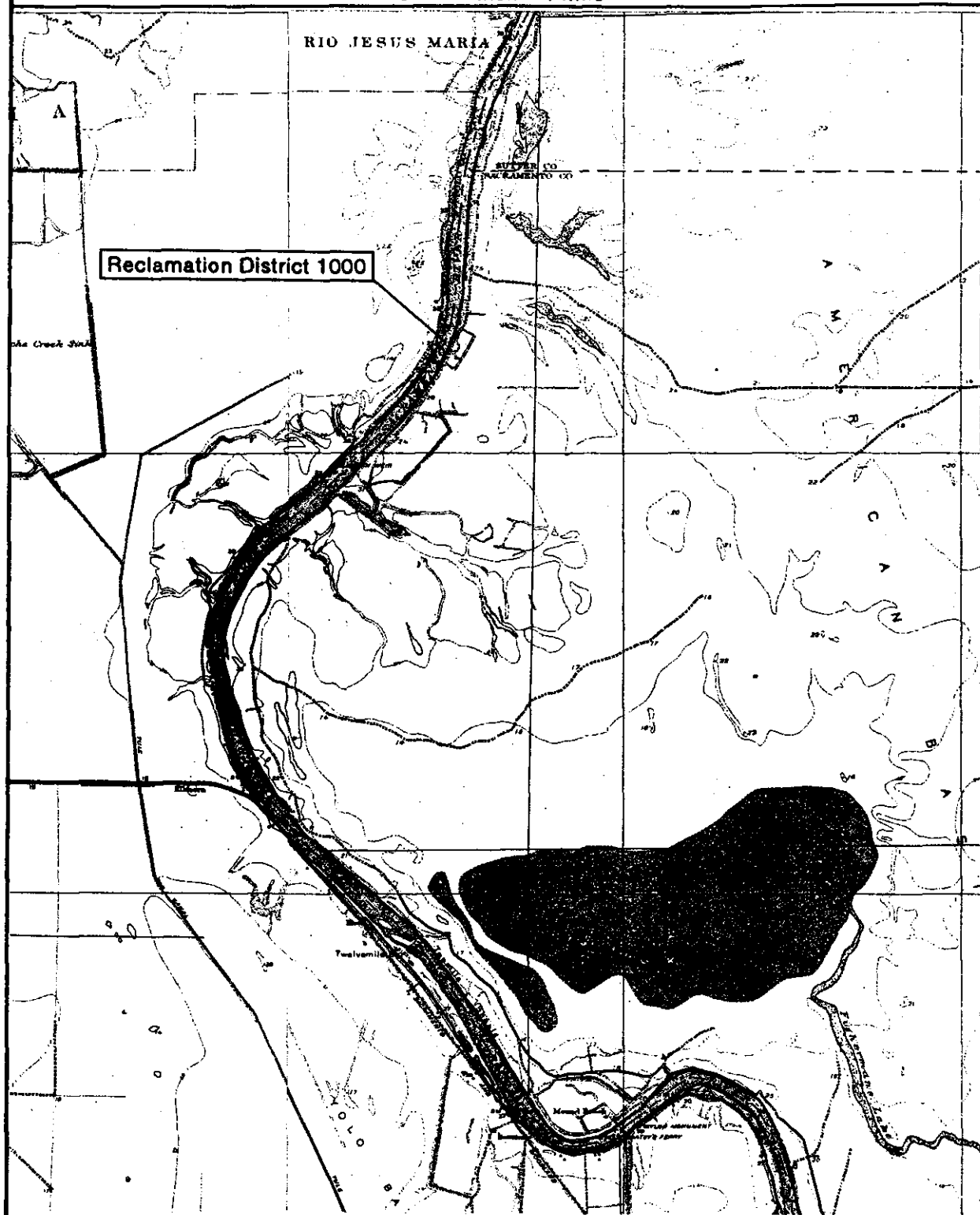
Elkhorn Weir 1915

RD 1000

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Page 48

Scale: 1 inch = 1 mile



Composite of USGS 1:31,680 Series Quadrangles:

Vernon 1910

Arcade 1911

Pleasant Grove 1910

Lovdal 1916

Grays Bend 1916

Brighton 1911

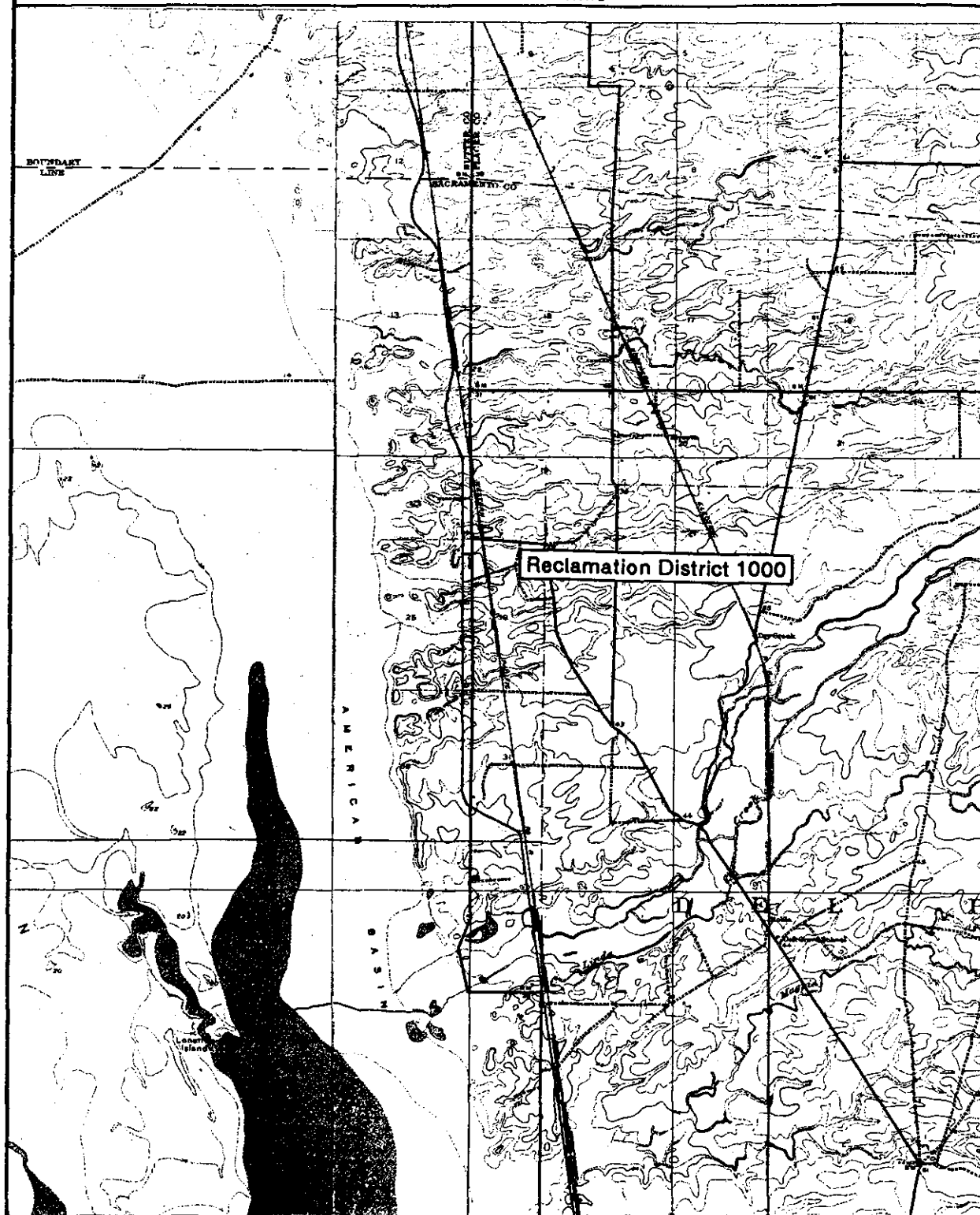
Elkhorn Weir 1915

RD 1000

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Scale: 1 inch = 1 mile



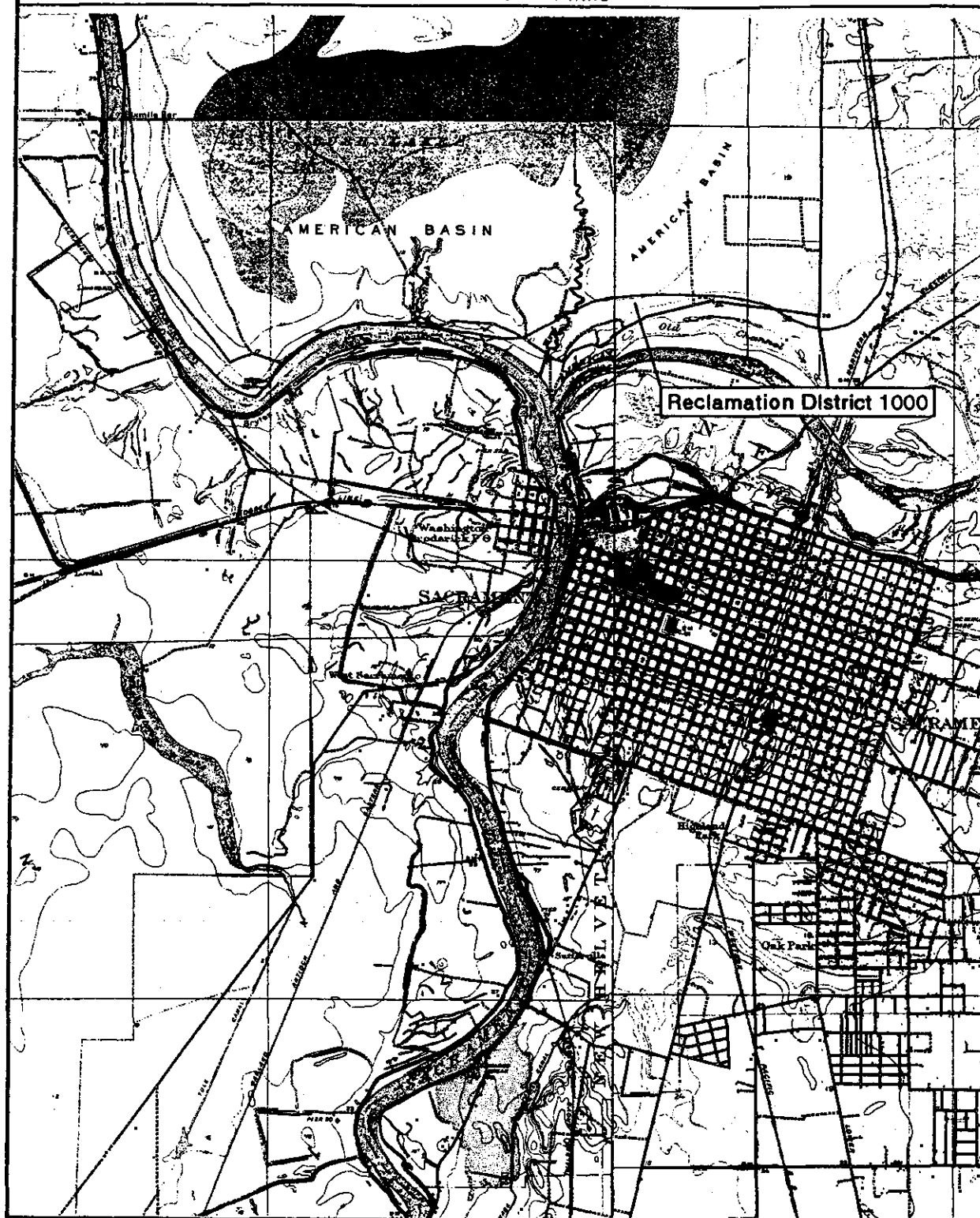
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Elkhorn Weir 1915

RD 1000

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Page 50

Scale: 1 inch = 1 mile



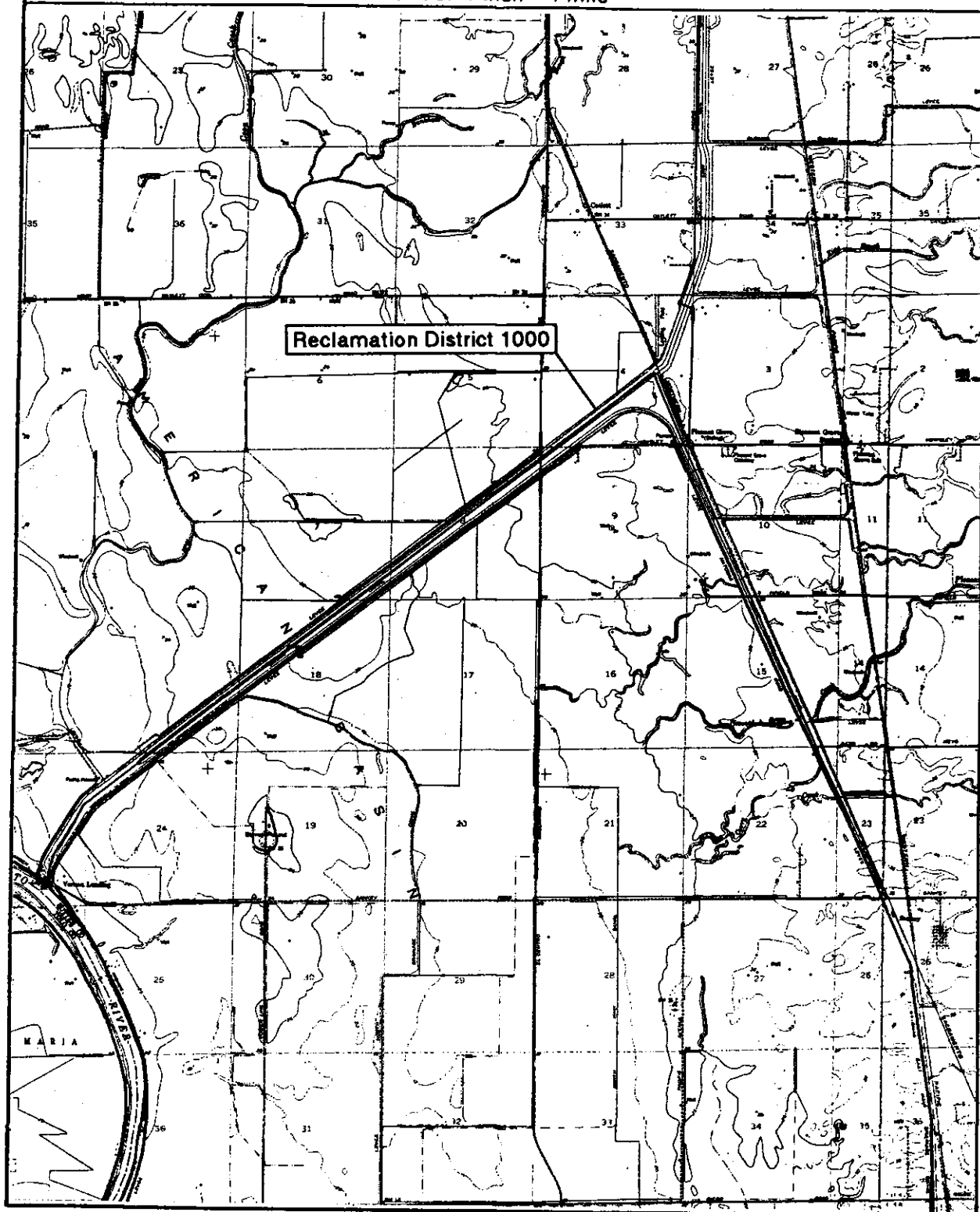
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Taylor Monument 1951

RD 1000

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Scale: 1 inch = 1 mile



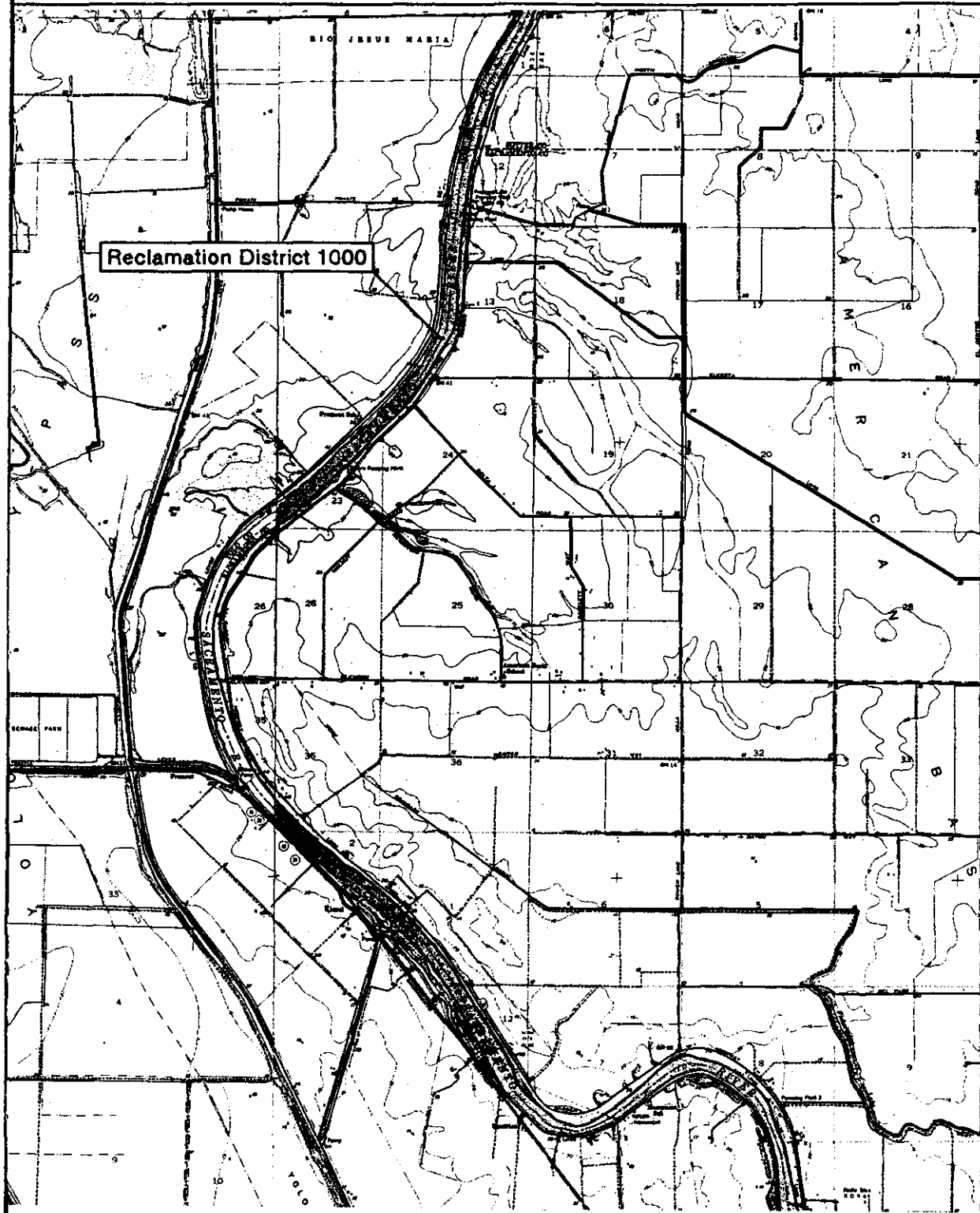
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Taylor Monument 1951

RD 1000

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Scale: 1 inch = 1 mile



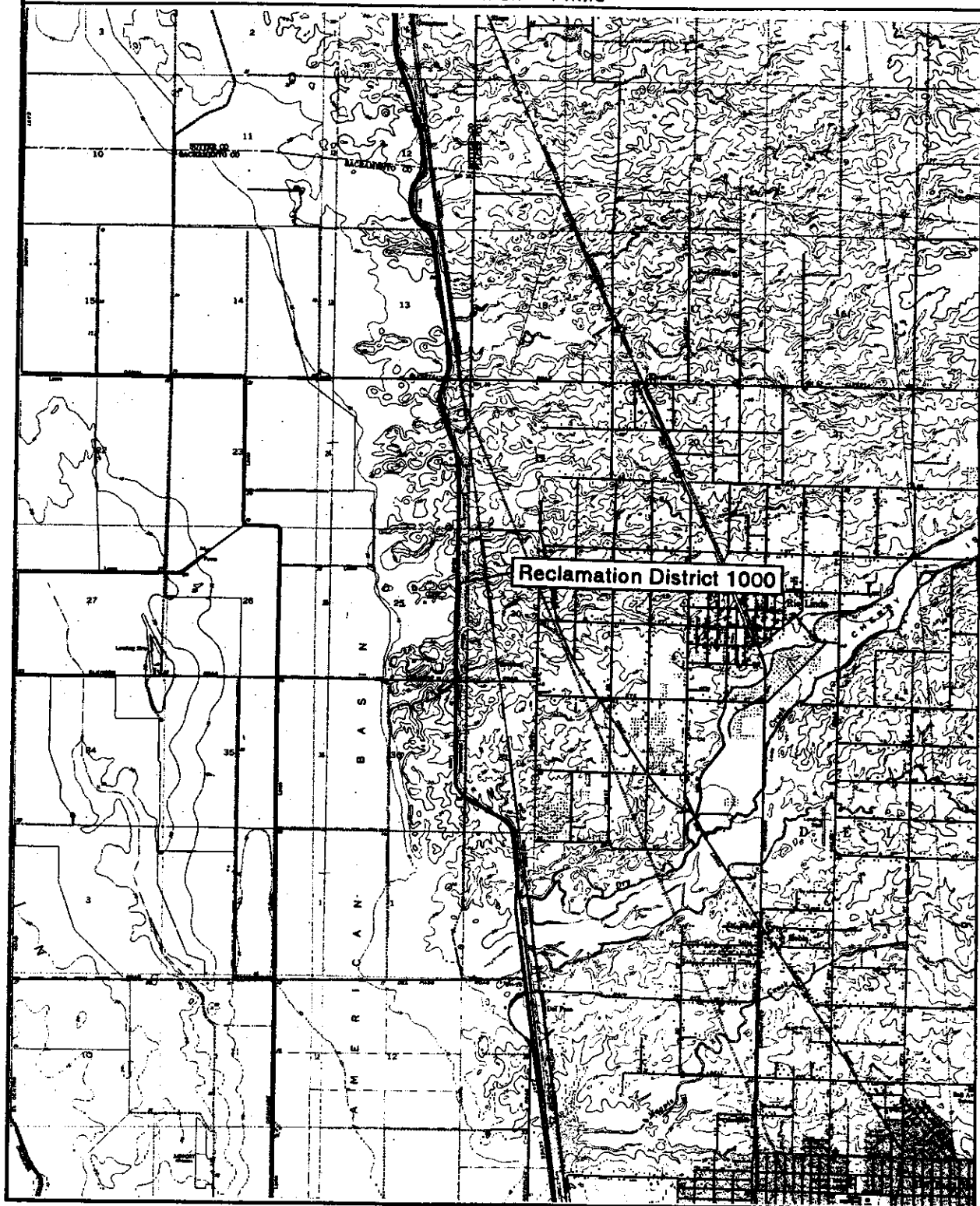
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Taylor Monument 1951

RD 1000

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Scale: 1 inch = 1 mile



Composite of USGS 1:24,000 Series Quadrangles:
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Pleasant Grove 1953 Sacramento West 1949
Grays Bend 1953 Sacramento East 1954
Taylor Monument 1951

RD 1000

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Scale: 1 inch = 1 mile



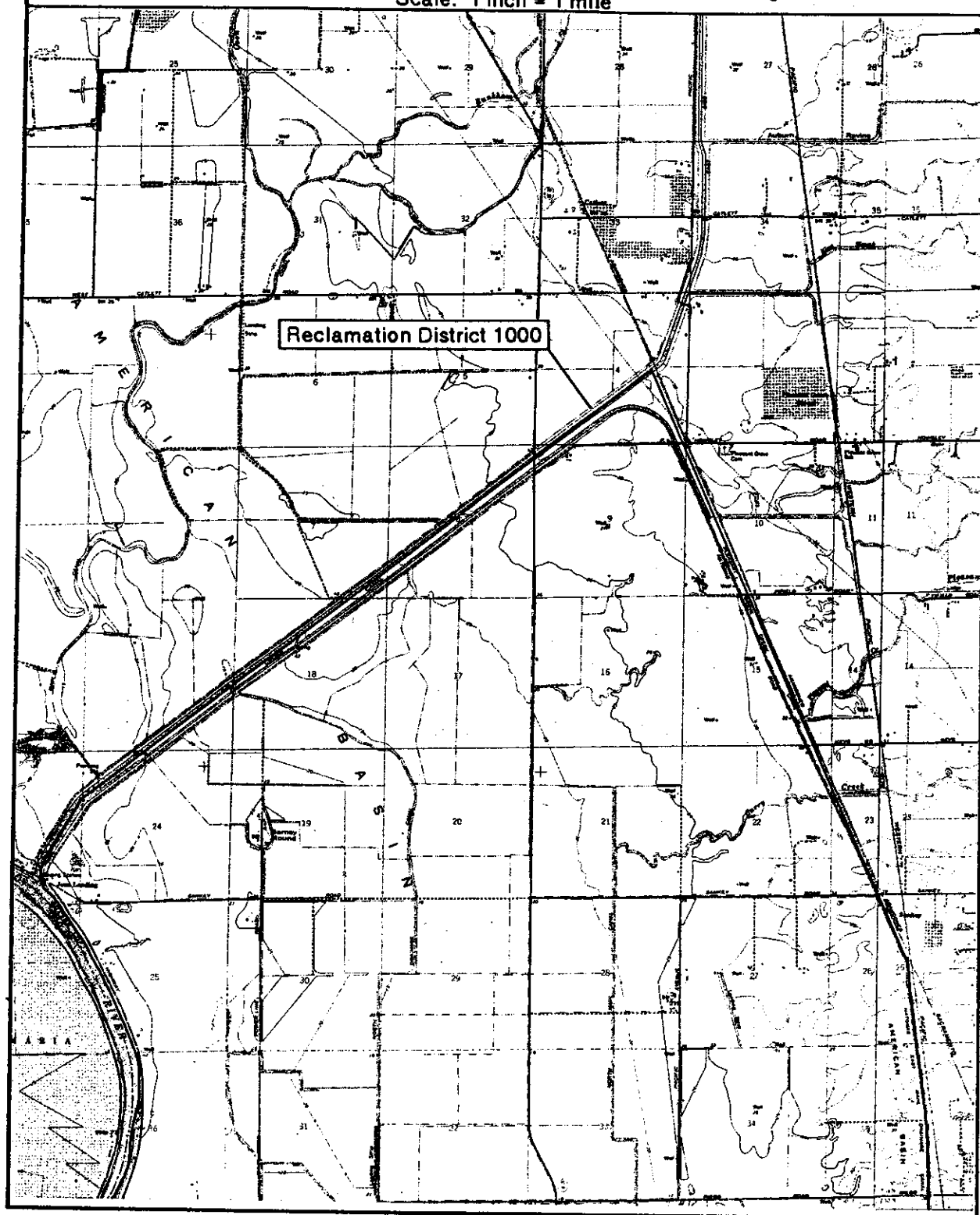
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Taylor Monument 1967

RD 1000

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Scale: 1 inch = 1 mile



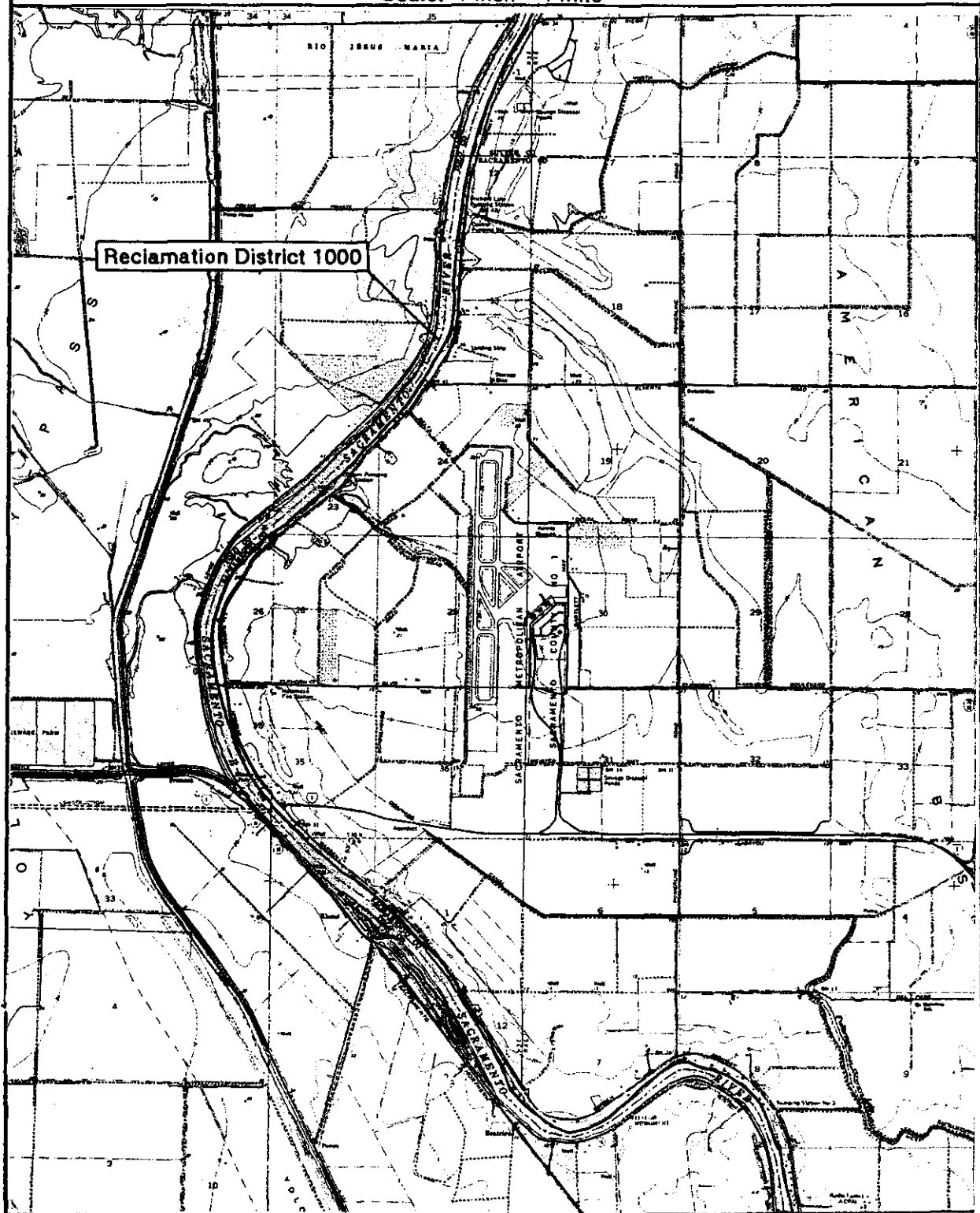
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Taylor Monument 1967

RD 1000

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Scale: 1 inch = 1 mile



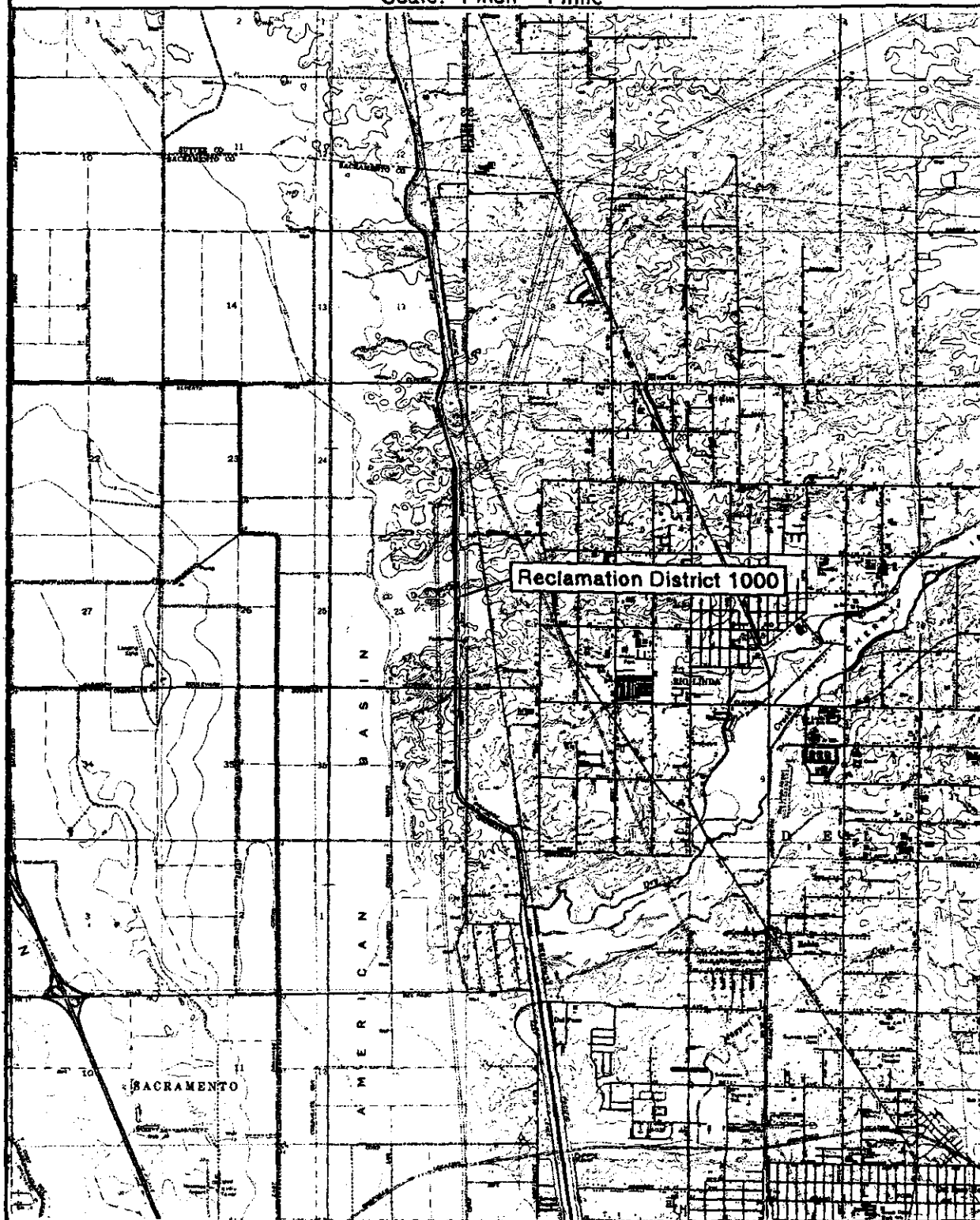
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Grays Bend 1968 Sacramento East 1967
Taylor Monument 1967

RD 1000

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Scale: 1 inch = 1 mile



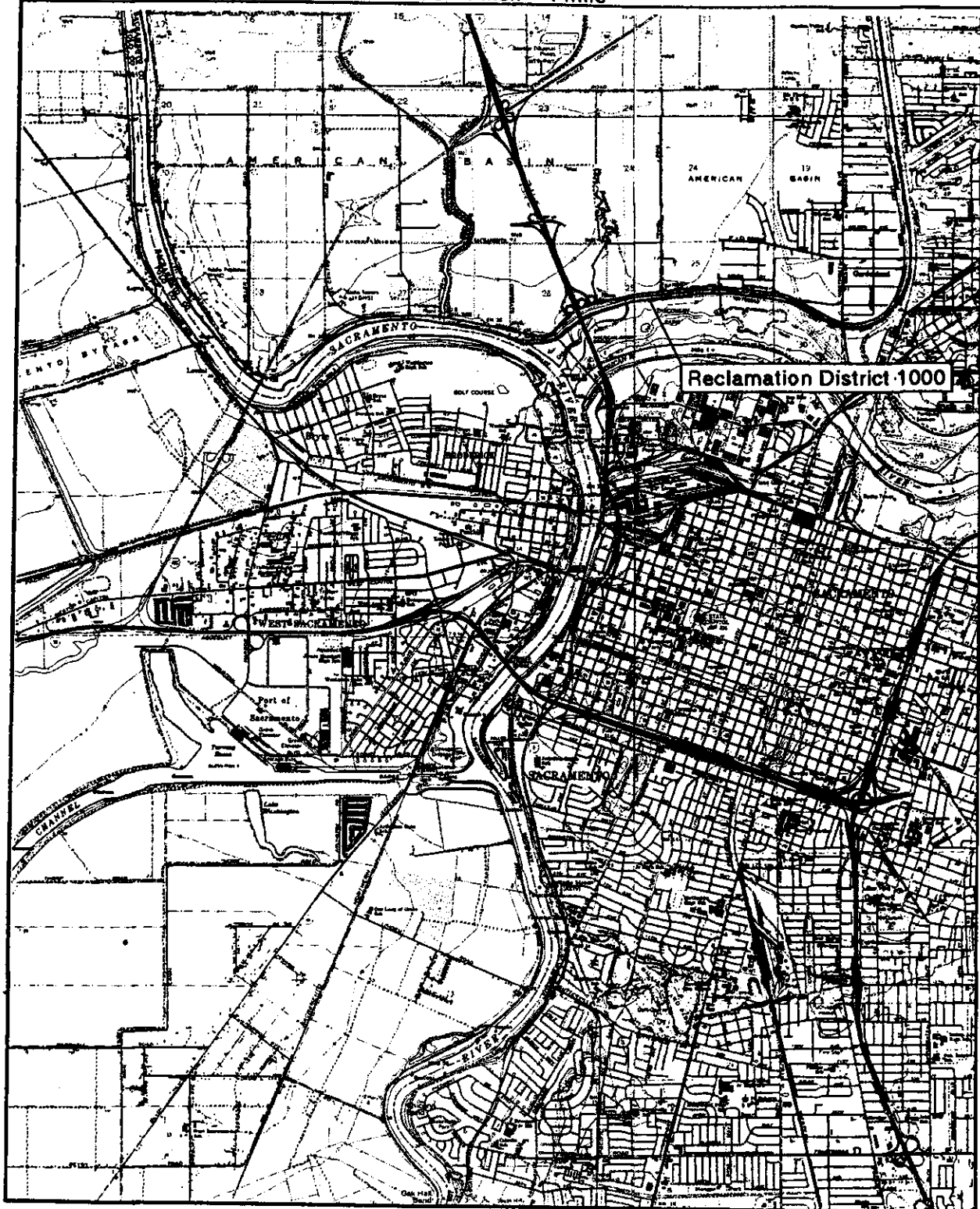
Composite of USGS 1:24,000 Series Quadrangles:
Verona 1967 Rio Linda 1967
Pleasant Grove 1967 Sacramento West 1967
Grays Bend 1968 Sacramento East 1967
Taylor Monument 1967

RD 1000

HAER NO. CA-187

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Scale: 1 inch = 1 mile



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V. PROJECT INFORMATION

General Background

Based on the results of a comprehensive *Feasibility Report/Environmental Impact Statement* conducted for the American River Watershed project area, the Sacramento District, U.S. Army Corps of Engineers (Corps) has determined that a number of measures are necessary to provide critically needed flood protection for urban areas along and adjacent to the lower American River in the vicinity of Sacramento, California. This feasibility study was conducted in response to record floodflows and flood damage in the American River basin caused during major storms across the region that occurred during February, 1986. Although numerous flood control measures were considered and 27 different protection alternatives were developed, a design that provides a 200-year level of flood protection is being recommended by the Corps and serves as the Selected Plan (Corps 1991).

Briefly, the major features of the 200-year protection alternative include:

- Construction of a flood detention facility with a 545,000-acre-foot capacity on the North Fork American River near Auburn to augment the existing flood storage behind Folsom Dam, located on the American River. This project would require 6,032 acres of land in the detention dam area and the relocation of State Highway 49 and Ponderosa Way.
- Acquisition of 5,385 acres of land along the South Fork American River for wildlife and botanical mitigation.
- Construction of levee, channel, and related flood control improvements at various locations in the Natomas area and along the lower extent of Dry Creek.
- Construction of 9.5 miles of pedestrian/bicycle trails and 7.5 miles of unpaved equestrian trails along portions of the Natomas East Main Drainage Canal (NEMDC) and lower Dry Creek and Arcade Creek.
- Maintenance of existing flood control storage space in Folsom Reservoir.

Detailed descriptions for each of the features are found in the *Feasibility Report/Environmental Impact Statement* for the project (Corps 1991). As initially

envisioned by the Corps, the American River Watershed project would encompass three distinct localities: (1) Natomas; (2) Upper American River, inclusive of the North, Middle, and South forks; and (3) Lower American River. Presently, however, the project is focused only within the Natomas Locality due to the failure of the U.S. Congress to authorize new flood storage along the American River as part of the 1992 Water Resources Development Act.

The Natomas locality is situated immediately north of the City of Sacramento and encompasses some 55,000 acres of reclaimed land in the American Basin. This locality is bordered roughly by the Sacramento River on the west, the American River on the south, the Natomas Cross Canal on the north, and the Natomas East Main Drainage and Pleasant Grove Creek Canals on the east.

Because of the immediate need for action to reduce flood risks in the Natomas Locality, and in light of the uncertainty of future Federal action to control flows in the American River, Sacramento Area Flood Control Agency (SAFCA) proposed to proceed with a stand alone project designed to provide as much flood protection as possible to the area without upstream improvements. This Historic Property Treatment Plan (HPTP) has been developed to assist the Corps with their Federal historic preservation responsibilities for the Natomas locality components of the Selected Plan [SAFCA local project] (Dames and Moore 1996).

SAFCA Local Project Description

The following description of Natomas locality project is taken from the *Initial Study and Proposed Negative Declaration, SAFCA Local Project Revisions, Natomas Area Flood Control Improvement Project* (EIP 1994). The improvements included in the project are being designed to safely withstand flows up to 180,000 cubic feet per second in the lower American River channel. This project will likely make the Natomas Basin the last failure point along the American River, thus providing the basin with well above a 100-year level of flood protection independent of any improvement in flood control capability along the river upstream of Natomas. The project would also protect portions of the North Sacramento, Rio Linda and Elverta communities by controlling high flows in the lower Dry and Arcade Creek watersheds and by reducing flood stages in the Natomas East Main Drainage Canal (NEMDC) north of Dry Creek.

The elements of the SAFCA Local Project are summarized below:

NATOMAS EAST MAIN DRAINAGE CANAL (NEMDC)

- Raise portions of the east and west levees a maximum of 3.5 feet. West levee raising would extend from the pump station north of Dry Creek to approximately 1,700 feet south of W. El Camino, and east levee raising would extend from the existing Robla Creek levee to approximately 2,000 feet south of W. El Camino. Revisions to the local project are as follows: to avoid levee superiority issues, design the NEMDC east levee improvements with a topwidth of 20 feet rather than 15 feet as anticipated in the Approved Local Project. Widen the top width of the project reach of the west levee north of Sotnip Road from 20 feet as shown in the Approved Local Project to 30 feet in order to better comply with current City of Sacramento design criteria.
- Construct stoplog structures at the east and west ends of the El Camino Avenue bridge crossing of the NEMDC.
- Construct additional temporary stoplog structure at West Main Avenue until the Main Avenue Bridge replacement is constructed as part of the Approved Local Project.

MAIN AVENUE BRIDGE

- Construct a new four-lane high level bridge across the NEMDC and Union Pacific Railroad at Main Avenue based on the County and City's commitment to cost-share in the betterment.

NEMDC PUMPING PLANT

- Construct a new pump station and gated control structure across the NEMDC approximately 2,600 feet north of the confluence of Dry Creek.

ARCADE CREEK

- Raise the north levee between the NEMDC and Marysville Boulevard a maximum of 3 feet. Revisions include the following: to avoid levee superiority issues, raise the north levee a maximum of an additional two feet to match the top elevation on the south levee and assure low points are not left in upstream reaches.
- Using a combination of earth fill and flood wall, raise the south levee west of Marysville Boulevard a maximum of 3 feet for a 500-foot reach. Revisions

include the following: the flood wall of the south levee will extend from Marysville Boulevard to Rio Linda Boulevard, and minor levee modifications of the south levee (top only fill with no sliver fills) will be undertaken to match north levee modifications.

- Construct stoplog structures at the north and south ends of the Norwood Avenue bridge crossing of Arcade Creek.
- Construct additional stoplog structures at Rio Linda Boulevard; or tie the levee or floodwall into the existing concrete bridge rail.

DRY/ROBLA CREEK

- Construct a new levee with a maximum levee height of 12.5 feet along the Union Pacific Railroad, Ascot Avenue, 4th Street and Rio Linda Boulevard with the east-west reach as a meandering alignment located between 100 to 800 feet south of Ascot Avenue, and the north-south reach to the rear of existing residential lots located along 4th Street. A portion of this section (the north-south) would be constructed as a flood wall. Revisions are as follows: Realign the Dry Creek north levee in two reaches. First, where the levee passes under the PG&E towers near 2nd Street and Ascot Avenue, move the embankment closer to the towers so that the required clearance from the top of levee to the power cable can potentially be met without raising the towers. Second, realign the levee to provide protection to all or portions of several additional properties (APN's 214-0160-070, 214-0160-090), which lie between the North Dry Creek and Dry Creek channels southwest of Marysville Boulevard. This will require: 1) abandonment of the North Dry Creek channel between Marysville Boulevard and the North Dry Creek-Dry Creek confluence; and 2) realigning the North Dry Creek channel to flow along the northeast side of Marysville Boulevard and connect with Dry Creek upstream of the Marysville Boulevard-Dry Creek bridge. As an alternative, the levee and North Dry Creek Channel could be relocated along the southwest side of Marysville Boulevard. The revised alignment would avoid loss of the existing North Dry Creek riparian vegetation and reduce impacts to the residential lots along 4th Street which would occur under the approved local project.
- Raise the existing south Dry/Robla Creek levee a maximum height increase of 8 feet across Rio Linda Boulevard north of Claire Avenue. As a result, Rio Linda Boulevard would need to ramp over the new levee. To accommodate the vertical raising, the profile of Rio Linda Boulevard would be adjusted for a length of

about 650 feet on either side of the new levee crossing. Revisions are as follows:
Construct an additional stoplog structure at Rio Linda Boulevard.

- Extend the south Dry/Robla Creek levee across Rio Linda Boulevard and another along the existing bike trail to the confluence of Robla Creek and the Magpie Creek Diversion channel. Maximum height approximately 11 feet. Revisions are as follows: Realign the Dry/Robla Creek levee slightly to the north along a diagonal route. Obtain additional right-of-way and extend construction further up the Magpie Diversion channel.

SANKEY ROAD IMPROVEMENTS

- Raise Sankey Road from the Union Pacific Railroad west to Natomas Road.
- Construct a new drainage channel from Sankey Road to the NEMDC channel and enlarge portions of the existing NEMDC to convey greater flows south.
- Construct a new box culvert under Sankey Road to accommodate greater flows as discussed above.
- Relocate the railroad spur line and loading dock facility near Sankey Road.

PLEASANT GROVE CREEK CANAL

- Construct a stoplog structure and retaining wall at the west end of the Fifield Road Bridge.
- Raise the Pleasant Grove Creek Canal west levee and Howsley Road.

NATOMAS CROSS CANAL

- Raise the existing south levee east of the Garden Highway to approximately State Highway Route 99.

AMERICAN RIVER NORTH LEVEE

- Raise a 200-foot reach of the American River north levee (the Garden Highway) between 0.0 and 0.5 feet by means of building up the existing asphalt pavement.

- Construct a stop log structure on the north side of the Northgate Boulevard NEMDC bridge approach.
- Construct additional stoplog at the UPRR track west of Del Paso Boulevard.

BORROW FILL MATERIAL SITES

Two locations within the NEMDC interior and a site located generally west of Sorento Road and north of Del Paso Road have been identified as primary borrow sites to meet project fill needs. The Garden Highway site would serve as backup to these sites. Revisions are as follows: Five additional borrow sites have been identified as the primary borrow site for the NEMDC, Dry/Robla Creek, and Arcade Creek improvements. These sites have been identified as sites 2C, 2D, 2E, 2N, and 2L and are located respectively north and east of the Sorento Road borrow sites. Sites 2L and 2N are the primary borrow sites for the Local Project Revisions. Sites 2C, 2D and 2E are proposed as alternate borrow sites, to sites 2L and 2N. Site 2L would be purchased and developed as part of SAFCA's wetland/upland mitigation complex to compensate for project impacts.

This documentation has been prepared at the request of the Sacramento Area Flood Control Agency (SAFCA), to satisfy the requirements of the *Historic Properties Treatment Plan for Reclamation District 1000 Rural Historic Landscape* (Dames & Moore 1996), prepared for the U.S Army Corps of Engineers. SAFCA's local project, as described above, is designed to provide the Natomas area and the RD 1000 rural historic landscape district with well above a 100-year flood protection. This improved flood protection will contribute to an increase in development pressures within the district. The resulting increase in development that will result from the improved flood protection will have an adverse effect on the contributing elements of the district--the drainage and road systems, and large scale land patterns--due to the physical destruction or alterations of these resources. Alterations to the individual contributing resources will result of a loss of integrity to the district.

Principal investigator for this documentation was Melinda Peak of Peak & Associates, Inc., with the guidance of architectural historian Ward Hill of San Francisco. The photographer is Keith Sutter of Auburn, California. The documentation is based on previous research conducted by Michael Corbett and Denise Bradley of Dames & Moore, Inc. of Chico, California, under contract to the U.S Army Corps of Engineers, for the nomination of the district to the National Register of Historic Places (*Rural Historic Landscape Report for Reclamation District 1000 for the Cultural Resources Inventory and Evaluations for the American River Watershed Investigation, Sacramento and Sutter Counties, California, 1995*).